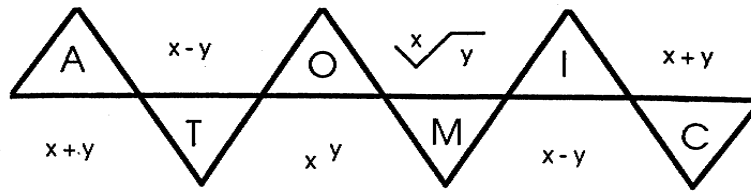


Spring 2009



## ASSOCIATED TEACHERS OF MATHEMATICS IN CONNECTICUT

[www.atomicmath.org](http://www.atomicmath.org)

### PRESIDENT'S ADDRESS

Greetings!

As we enter Spring, teachers often breathe a sigh of relief that standardized tests are behind them for another year and think about the remaining concepts that still need to be taught before our students move on. It is an exciting time of change and evolution for everybody as we reflect on our practices during the current year and make plans for the future. ATOMIC would like to invite you to learn more about the future in mathematics education by attending our Spring Dinner with Commissioner Mark McQuillan.

Please check the ATOMIC website for more information. We would like you to join us on May 12<sup>th</sup> at the Trumbull Marriott for a great professional development activity for all mathematics educators. We are excited to host Commissioner Mark McQuillan who will discuss the topic of Secondary School Reform as it relates to mathematics. I encourage all members to attend as changes at the high school level indirectly impact all grade levels and teachers. It promises to be an informative presentation that highlights the model curricula, technology, and areas of focus for 21<sup>st</sup> Century skills. Dinner is included in the ticket price and it is a wonderful opportunity to engage in conversation with other educators.

Do you have a project that needs funding? We can help. In this climate, many school districts are unable to fund new programs and ATOMIC is offering grant money up to \$500. Please take a few minutes to review the ATOMIC website and consider submitting a grant proposal. Applications may be submitted throughout the year and will be reviewed when received.

Discussions are under way for our 50<sup>th</sup> Anniversary which will take place in 2009-10. It is amazing to think how an organization has evolved over the past 50 years and to consider where we will be heading in the next 50 years. We have a committee who is planning a variety of speakers on topics related to mathematics, newsletter articles focusing on 50, and a keynote speaker for our annual Fall conference who will help us gain perspective on how mathematics has changed and the direction in which we hope to head. As we progress, we invite you to participate in our 50<sup>th</sup> anniversary logo design contest. Your artwork could be chosen for our logo for the year. Use your creativity. We look forward to seeing your entries! If you have any ideas and suggestions, please feel free to contact me at [hartk@madison.k12.ct.us](mailto:hartk@madison.k12.ct.us). I welcome and value your input as we work to serve our members.

*Kathryn Hart, ATOMIC President*

### SAVE THE DATE!

## ATOMIC Spring Dinner

May 12<sup>th</sup>, 2009

Trumbull Marriott

Guest Speaker: Mr. Mark McQuillan,  
Commissioner of Education

Topic: Connecticut's Plan for Education Reform

For more information check [www.atomicmath.org](http://www.atomicmath.org)

### SAVE THE DATE!

## *NCTM announces Northeast Regional Conference*

October 21-23, 2009

Hynes Convention Center &  
the Shearaton Back Bay Hotel, Boston, MA

ATMNE and ATMIN will act as co-hosts for the Conference that will offer nearly 300 sessions & workshops that will satisfy the mathematical thirsts for teachers from Pre-K through Grade 12 and beyond. More info to come.

## 2009 CONNECTICUT SCIENCE FAIR ATOMIC AWARDS

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By Alice Burstein

Thursday, March 12, 2009 was an important day in the lives of many Connecticut Science Fair participants. That was the day of the Finalist Awards ceremony. With proud parents grandparents, siblings, and some proud mentors in attendance, participants received over \$100,000 in prizes.

With so many superb projects, all judges found it difficult to select the best in both the Middle School Level and in the High School Level. Mathematics judges were no exception, but we managed to decide which projects were the best. ATOMIC Awards winners were:

### Middle School Level

**First Place** (Trophy, \$200 from ATOMIC, and \$300 from Xerox)

Emily Baczyk, Can Snowflakes be Modeled with Cellular Automata or Chaos?

Grade 8, Talcott Mountain Academy, Avon  
Mary Bauer, Mentor

**Second Place** (Trophy, \$100 from ATOMIC, and \$200 from Xerox)

Brendan Wardlow, Weather and its Impact on an NFL Playoff Offenses Production

Grade 8, Flood Middle School, Stratford  
David Gorski, Mentor

### Medalists

Samuel Sims, Cellular Automata

Grade 8, Talcott Mountain Academy, Avon  
Mary Bauer, Mentor

Miranda Cirrito, Snow Melting  
Fields Memorial School, Bozrah  
Grade 7, Evelyn Brown, Mentor

Michael Lash and Adam Damon, What Goes Down  
Must Come Up

Grade 8, Middlebrook School, Wilton  
Victoria Madden, Mentor

### High School Level

**First Place** (Trophy, \$200 from ATOMIC, and \$600 from Xerox)

Aditya Rajagopalan, Modeling Synergistic Cellulolytic-Hemicellulolytic Enzyme Complexes for Lignocellulosic Hydrolysis

Grade 112, Choate Rosemary Hall, Wallingford  
Deron Chang, Mentor

**Second Place** (Trophy, \$100 from ATOMIC, and \$300 from Xerox)

Fiona Wood, Biophysically Realistic Computational Models of Temporal Encoding in Cortex

Grade 12, North Haven High School  
Marilynn Kramar, Mentor

**Third Place** (Trophy and \$200 from Xerox)

Priya Ranade, Optimization of a Melanoma Screening Program Based on a Computer Simulation Model for Metastasis

Grade 12, East Lyme High School  
James Michaelson, Mentor

### Medalists

Aakash Bhattacharya

A Longitudinal and Cross-Sectional Panel Data Analysis of Labor Cost Variability in Large and Small Firms

Grade 11, Choate Rosemary Hall, Wallingford  
Mousumi Bhattacharya, Mentor

Benjamin Altman, The Effects of Various Traffic

Conditions on Traffic Congestion

Grade 10, Danbury High School  
Andrea Larosa, Mentor

ATOMIC would like to extend its thanks to Xerox (our new partner for mathematics awards) for its support.

Thanks also to Maria Diamantis, Ruth Urbina-Lilback, and Helen Tsai for their assistance in the judging process.

Science Fair, check out <http://www.ctsciencefair.org/>.

The site has a wealth of information, with archives going back to 1999; links to helpful articles and to sites with project suggestions; and more.



From left to right: Alice Burstein, Priya Ranade, Fiona Wood, Aditya Rajagopalan, Aakash Bhattacharya, Benjamin Altman. *Photos taken by Dr. Frank LaBanca, Oxford High School.*



Aditya Rajagopalan,  
First Place in  
Mathematics (High  
School)



Emily Baczyk, First  
Place in Mathematics  
(Middle School)

## NOTE FROM THE EDITOR:

As we begin to see the light at the end of the tunnel and anxiously await the beginning of Summer vacation, please keep in mind that the ATOMIC newsletter so desperately needs your input. Throughout your travels this summer, keep your eyes out for interesting activities that fellow teachers might like to try in their classrooms. I would like to encourage all of our readers to send in lesson plans, creative activities, quotes, tips, articles, etc. that might be of interest to others in the ATOMIC membership

If you found math-related picture books that you would like to share with the membership, please send in a review! Submissions could be as simple as a sentence or two or as long as a page or two!

If you would like to submit an article for publication keep in mind that deadlines are the 2<sup>nd</sup> week of September, January and April. Due credit will be given. Please help to make the ATOMIC newsletter a great read for all. **Have a wonderful Summer! Have fun, stay safe. See you in the Fall!**

*Nancy Iannuzzi, Newsletter Editor*

[Nancy.Iannuzzi@ct.gov](mailto:Nancy.Iannuzzi@ct.gov)



P.S. A very special thank you to all of those members who have contributed to this issue of the ATOMIC newsletter and to all of those members who have contributed in the past. Your support is greatly appreciated.

***Articles that appear in this publication of the ATOMIC newsletter are solely the opinions of those members who have submitted the articles and are not necessarily the opinion of ATOMIC.***

## ATOMIC 50<sup>TH</sup> ANNIVERSARY LOGO DESIGN COMPETITION

Try your hand at designing a logo for the ATOMIC 50<sup>th</sup> Anniversary celebration! Rules of the contest are stated below:

- The organization name ATOMIC should be included in the final design.
- The logo must reflect the 50th anniversary of ATOMIC.
- The logo should be immediately identifiable.
- The logo should be simple and clear in concept.

Please keep in mind that the logo should convey the traditional goals and spirit of the mathematics past while looking toward the mathematics future.

It must be distinctive in the quality and originality of its visual image and naturally not offend any national, cultural or religious sensitivity.

Include colors. *A maximum of four colors* may be used in the design **INCLUDING BLACK AND WHITE!** You can use one color as a background. *Solid colors only;* no water color, gradients or airbrush, please. Those techniques look wonderful, but they are too costly to reproduce on shirts, posters, etc. Sorry.

It must adapt well to electronic media, printed media, reduction to small sizes, in one-color and full-color, both in positive and negative form (used on light or dark backgrounds).

Must be the original work of the submitter.

Must be free of any copyright or other intellectual property claims.

The above information is not meant to limit creativity in any way. We are open to a wide range of creative solutions.

### TEACHING MATH - 1950 TO THE PRESENT

*Posted by Dr. Richard M. Swier, LTC, U.S. Army (Ret.)*



Last week I purchased a burger at Burger King for \$1.58. The counter girl took my \$2 and I was digging for my change when I pulled 8 cents from my pocket and gave it to her. She stood there, holding the nickel and 3 pennies, while looking at

the screen on her register. I sensed her discomfort and tried to tell her to just give me two quarters, but she hailed the manager for help. While he tried to explain the transaction to her, she stood there and cried.

Why do I tell you this? Because of the evolution in teaching math since the 1950s:

1. Teaching Math In 1950s- A logger sells a truckload of lumber for \$100. His cost of production is  $\frac{4}{5}$  of the price. What is his profit?
2. Teaching Math In 1960s -A logger sells a truckload of lumber for \$100. His cost of production is  $\frac{4}{5}$  of the price, or \$80. What is his profit?
3. Teaching Math In 1970s -A logger sells a truckload of lumber for \$100. His cost of production is \$80. Did he make a profit?
4. Teaching Math In 1980s -A logger sells a truckload of lumber for \$100. His cost of production is \$80 and his profit is \$20. Your assignment: Underline the number 20.
5. Teaching Math In 1990s -A logger cuts down a beautiful forest because he is selfish and inconsiderate and cares nothing for the habitat of animals or the preservation of our woodlands. He does this so he can make a profit of \$20. What do you think of this way of making a living? Topic for class participation after answering the question: How did the birds and squirrels feel as the logger cut down their homes? (There are no wrong answers, and if you feel like crying, it's ok.)
6. Teaching Math In 2007 -Un hachero vende una carretada de maderapara \$100. El costo de la producciones es \$80. Cuanto dinero ha hecho?

## Rules and Submission Requirements

Form of the competition: Open logo design.

Participation: The competition is open to all members of ATOMIC.

Explanation of the competition: ATOMIC (Associated Teachers of Mathematics in Connecticut) will be celebrating its 50<sup>th</sup> anniversary during the 2009-2010 school year. The ATOMIC Mission is to ensure that every Connecticut student receives world-class education in mathematics by providing vision, leadership and support to the K-16 mathematics community and by providing every teacher of mathematics the opportunity to grow professionally. ATOMIC will be celebrating the historical relevance and future possibilities of mathematics in our world.

Number of designs and presentation data: Only **one** design may be submitted per person. Designs shall be submitted in their final form as finished artwork (no rough sketches).

Format and transmission of artwork: Judging will be done electronically due to geographic separation of the jury. Therefore, all submissions are to be in an appropriate electronic format (.jpg, .tiff) for viewing on-screen.

Deadline: August 1, 2009

Selecting the Winners:

Members of the Executive Board of ATOMIC will review the designs.

The Executive Board of ATOMIC will vote on a winning design.

The winner will be notified via email by September 1, 2009.

ATOMIC reserves the right to reopen the contest if no design is chosen.

Copyright, right of use:

Upon completion of the competition ATOMIC acquires full ownership of all submitted logos by assignment of copyright, and the winning designer will disclaim

any trademarks and without limitation all other rights related to the design.

Exploitation of the competition results for public relations purposes:

By submitting their designs, all participants authorize ATOMIC to use their designs for public relations purposes without compensation, for instance by publishing the competition results in broadcasts and in written or electronic media or both – with a mention of the creators' names – and to display or publish all or some of the submitted designs anywhere in the world.

Return of designs:

Participants are advised to retain personal records of their designs as neither the designs submitted nor the electronic media will be returned.

Validity of the Rules: Participants unreservedly accept these rules.

Submission Information: Participant must include their: Name, Affiliations (school, grade, etc), Phone number, Email address, Home address.

Please send your entry to Lorrie Quirk  
[quirkle5@sbcglobal.net](mailto:quirkle5@sbcglobal.net)

### **GMAT 50 TOUGH MATH PROBLEMS**

by Veronika Nuretdinova

The book contains 50 tough and tricky math problems designed for GMAT preparation. All problems are provided with answers and explanations.

### **MCGRAW -HILL'S TOP 50 MATH SKILLS FOR GED SUCCESS**

(Paperback)

by Robert (Bob) Mitchell and Dolores Emery.

This Pretest consists of 50 carefully chosen questions that address the skills most likely to be covered on the GED Math Test.

## THE EVOLUTION OF MATHEMATICS TEACHER EDUCATION

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*Thomas J. Cooney*

Before 1960 most teacher education programs for secondary school mathematics teachers consisted of training in mathematics, a methods course of some kind, and student teaching. Smaller programs at colleges or universities tended to have generic methods courses that addressed the needs of secondary teachers of all subjects. One can glean an understanding of the content-specific methods courses by considering the methods texts of that time. For example, the popular 1960 methods text by Charles Butler and Frank Wren (first published in 1941) consisted of two sections. The first section dealt with general issues such as planning for instruction. The second section was decidedly mathematical, with specific suggestions for teaching topics such as arithmetic, algebra, geometry, and trigonometry. There was a clear distinction between these two sections. Donovan Johnson and Gerald Rising's innovative 1967 text was based on what mathematics teachers do in the classroom. As such, it addressed issues specific to the teaching and learning of mathematics. A 1975 text by Thomas Cooney, Edward Davis, and Kenneth Henderson for secondary mathematics teachers also had a very distinct pedagogical orientation based on research on how teachers teach mathematics. Whereas the Johnson and Rising text was based primarily on teachers' daily responsibilities, the Cooney, Davis, and Henderson text was based on a theoretical analysis of teachers' verbal actions, called moves, and the way those moves were used to teach mathematical concepts, generalizations, and skills.

During the 1960s and 1970s educators began to see the value in studying the teaching and learning of mathematics more specifically. Out of this new focus on research grew an interest in developing a psychological basis for understanding why some students learned but others did not, and what kind of teaching methods and curricula could affect student learning. This growing knowledge base contributed to mathematics teacher education as well.

### **The Evolution of Mathematics Education as a Field of Inquiry**

Prior to 1960 there was little research on how children learn mathematics and how teachers teach mathematics. The teacher's job was seen primarily as a matter of

telling students the mathematics they were expected to learn. But as research in mathematics education matured, questions arose about how students understand mathematics. Consider, for example, the variation in understanding of mathematics conveyed in the responses of two students to the following questions:

Are there any numbers between 440 and 450 that are divisible by 7? Why or why not?

**Response of Student 1:** There must be a number because 7 is less than 10. So in every 10 numbers there has to be at least one that is divisible by 7. (Student elaborates for entire page.)

**Response of Student 2:** There is no number because 440 and 450 is not divisible by 7 - 44 is not, 45 is not, and 0 is not.

The response of student 1 reveals a deep understanding of how numbers work, while the response of student 2 demonstrates some understanding of divisibility, since 44 and 45 are not divisible by 7, but fails to capture the mathematical essence of the question. If the interest of teacher educators in evaluating these two responses goes beyond one student having gotten it right and the other student not, then they can begin to ask how a teacher could enable the second student to better understand divisibility. Indeed, teacher education today focuses, in part, on enabling teachers to create and use such questions so that they can better analyze their students' understanding of mathematics. Simply put, the education of mathematics teachers entails a certain kind of knowledge that involves mathematics, psychology, and ways of teaching mathematics that are more effective than simply telling students what mathematics is and what the answers to various problems are. This knowledge base has grown substantially over the past decades because of the extensive research in mathematics education.

### **In-Service and Staff Development Programs**

An appreciation of the complexity of teaching has led teacher educators to move toward programs in which teachers are provided with extensive training and support to implement new practices - such as problem-solving techniques or infusing technology into their

teaching. There is mounting evidence that teachers need support and time if they are to reform their practice. For example, the successful professional development program by Raffaella Borasi, Judith Fonzi, Constance Smith, and Barbara Rose not only emphasizes having teachers interact with materials designed to foster student inquiry but also provides teachers with support as they use the materials in their classroom. Some in-service programs engage teachers in deep experiences with the mathematics they are teaching, thereby giving them new insights into their students' understanding of that mathematics. Programs that encourage teachers to reflect on the types of experiences they have and are providing to their students are becoming increasingly popular.

### **Trends, Issues, and Controversies**

Perhaps the single most significant force affecting mathematics teacher education today has been the development of standards for school mathematics by the National Council of Teachers of Mathematics (NCTM). Through these standards, the NCTM has taken the view that mathematics is a subject suitable for inquiry and not just memorization, a subject that can be learned by all students and should be taught with an emphasis on processes such as problem solving, reasoning, communicating mathematically, and connecting mathematics to the real world. One way or another, most teacher education programs today embody the NCTM standards. Controversies about this approach stem from several questions, including: What constitutes mathematics? And.. Should mathematics teacher education programs be about reform or about maintaining the status quo?

### **The Nature of Mathematics**

Different segments of society possess different views about what constitutes mathematics. Some think of mathematics as a collection of rules and procedures to be learned and applied for basic living. From this perspective, the teaching of mathematics relies on those methods best suited to promote the acquisition of skills. Others see mathematics as a basis for developing critical thinking and problem-solving skills. From this second perspective, which is closely aligned to the NCTM Standards, teacher education encourages reflection and promotes attention to problem solving and critical thinking. How a community defines mathematics affects

what, and how, mathematics gets taught in the local schools. It can also have an impact on how teachers are trained to teach in those schools.

### **The Intent of Teacher Education Programs**

There is always a certain tension between the intellectual preparation of teachers and the practice of teaching as manifested in student teaching. Those from outside the field of mathematics education often take the position that teacher education should be modeled after an apprenticeship program. That is, one learns mathematics and then works in the schools to acquire the necessary pedagogical skills to be a successful teacher. This type of program tends to promote the status quo, as young teachers model those methods of teaching that they experienced as students. Teacher educators, however, usually take the position that a greater part of the program should be devoted to transforming the teaching of mathematics from a "teaching is telling" approach to an inquiry-based teaching style that is student centered. The notion of *constructivism* is often used to describe this latter kind of teaching; that is, children construct their own mathematical ideas, and teachers need to be aware of these constructions in order to effectively teach the children.

The preparation and education of mathematics teachers, like any educational endeavor, exists in a sociopolitical environment that ultimately shapes the enterprise. Conditions of the workplace also shape what transpires in classrooms. These circumstances affect mathematics teacher education programs as well. Schools today are run much as they were in yesteryear, thus perpetuating a certain conservatism with respect to reform. This approach strengthens the position of those who advocate an apprenticeship form of teacher education. Evidence suggests that the United States is experiencing, and will continue to experience, serious teacher shortages, particularly in mathematics. Such shortages usually preclude more extensive training in favor of short, intense programs that are less demanding on the schools' staffing resources.

On the other hand, reform-based teacher education programs enjoy the support of such national organizations as the NCTM and are rooted in the thinking of scholars such as John Dewey. Dewey's notion of *reflective thinking*, albeit adapted and modified, is part and parcel of most current teacher education programs.

Indeed, if the position is taken that education is about educating young people to become thinking citizens in a democratic society, then the education of teachers to infuse problem solving, reasoning, and critical thinking into their teaching should be of paramount importance. In some sense, the notion of what constitutes a good teacher education program is dependent on what one values regarding society's education of its young people.

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## CAMPY ON CAMPUS

Middle school students from across the state will be able to attend CAMPY on Campus conferences at Southern Connecticut State University, Western Connecticut State University, Eastern Connecticut State University and (hopefully) the U.S. Coast Guard Academy on May 27, 2009. There will also be a program available at Central Connecticut State University on May 29, 2009.

The programs are currently being planned and it is expected that the registration and program information will be available in late March at the CAMPY website at [www.campy.org](http://www.campy.org). Registration will be on-line and the fee for the conference is \$35 per student. There will be 2 chaperones allowed per district without charge. Additional chaperones will be charged at the student rate. If a district needs assistance with funding please contact Judy@campy.org for information. If you have any questions about the programs please contact Judy Dailey at [judy@campy.org](mailto:judy@campy.org) or by phone at 860-443.6163.

## 50 CARDS UNSEEN

The game is Texas Hold'em. There are 52 cards in the deck. I receive 2 cards (a 5 of hearts and a 6 of spades) that I can see. Therefore, there are 50 cards unseen. The dealer is going to flop or turn over three cards that I will see. I want to know the formulas and solution to the following:

1. What are the odds of receiving one 5 out of the three cards flopped by the dealer? My answer is as follows: there are 3 5's left in the deck and there are 47 other cards of the 50 unseen cards.  $47/50 \times 46/49 \times 45/48 = .827296$  or 83% chance of not hitting the 5. Which means there is a 17% chance of hitting one five out of the three cards on the flop. I have a software program on Texas hold'em that indicates the answer is 13.5% or 6.4 to 1. Don't understand discrepancy. For space I will not put my calculations with the question.
2. What are the chances of hitting 2 5's out of the three 5's in the deck?
3. What are the chances of hitting 3 hearts on the flop?
4. What are the chances of hitting 3 5's on the flop?

No fives:

100% minus P(no fives)

$$100\% - (47/50)(46/49)(45/48) = 82.73\% \text{ (approx)}$$

Exactly one five:

$P(5) * P(\text{not } 5) * P(\text{not } 5) * 3$  ... the three is factored in because the 5 could be 1st, 2nd, or 3rd

$$(3/50) * (47/49) * (46/48) * 3 = 16.55\% \text{ approx}$$

Exactly two fives:

$P(5) * P(5) * P(\text{not } 5) * 3$  ... for the same reason as above

$$(3/50) * (2/49) * (47/48) * 3 = 0.72\% \text{ approx}$$

Exactly three fives:

$$P(5) * P(5) * P(5)$$

$$(3/50)(2/49)(1/48) = 0.01\% \text{ approx}$$

Note: the above four answers sum to 100% (actually 100.01%) because they represent the only four possibilities for getting fives.

Exactly three hearts:

$$P(\text{heart}) * P(\text{heart}) * P(\text{heart})$$

$$(12/50)(11/49)(10/48) = 1.12\%$$

*Might want to fold....*

## KEYS TO YOUR FUTURE

### STEM Conference for High School Students

On May 19, 2009 The Connecticut Association for Mathematically Precocious Youth (CAMPY) and the Project to Increase the Mastery of Mathematics and Science (PIMMS) will co-sponsor the conference entitled, "Science Technology, Engineering, and Mathematics; Keys to Your Future." The high school level conference will be held at Wesleyan University in the science tower. One of the goals of the day will be to highlight non-traditional and traditional careers in science, technology, engineering and mathematics. Students and teachers attending the conference will select a brief morning session from a variety of vocational offerings and will spend an extended time in a career related problem-solving sessions in the afternoon.

Currently the program will offer selections such as radiation chemistry, computational biology, business decision-making, applications in health physics, fuel cell technology, and helicopter flight safety. Commitments from speakers continue to arrive and we expect several other careers to be represented during the day. The conference will begin with registration at 7:30 and there will be a registration fee of \$35 per student. If there are school districts that are unable to meet the financial costs, there are limited scholarships available. Registration will be put online in late March and it is recommended that schools try to save the date as most of the CAMPY programs register to capacity long before the registration deadlines. If additional information is needed please email [Judy@campy.org](mailto:Judy@campy.org) or call Judy Dailey at 860-443-6163.

## 50 GALLONS OF WATER

Michael Shackelford, A.S.A.

Water flows into a tank at a rate of 1 gallon per second. Water leaves the tank at a rate of 1 gallon per second for each 100 gallons in the tank. The tank is initially empty. How long will it take for the tank to fill with 50 gallons of water?

Answer:  $100 \cdot \ln(2)$  seconds  $\approx$  69.3 seconds.

Solution:

You will need to understand the basics of differential equations for this one. Let  $V_t = V$  = The volume in the tank at time  $t$ . Let  $\Delta t$  =  $\Delta t$  (since I don't know how to display a delta symbol in HTML). Let  $K$  = Some constant of integration.

$$V_{t+\Delta t} = V_t + 1 \cdot \Delta t - (\Delta t/100) \cdot V_t.$$

$$dv/dt = (V_t - V_{t+\Delta t}) / \Delta t = 1 - V/100.$$

$$dv = (1 - V/100) dt$$

$$100/(100-V) dv = dt$$

Integrate each side:

$$-100 \cdot \ln(100-V) = t + K_1$$

exponentiate each side:

$$(100-V)-100 = K_2 \cdot e^t$$

$$100-V = e^{-t/100} \cdot K_3$$

$$V = 100 - K_3 \cdot e^{-t/100}$$

We know  $V=0$  when  $t=0$ , thus  $K_3=100$

$$V = 100 \cdot (1 - e^{-t/100})$$

Substitute 50 for  $V$  and it is not difficult to solve for  $t=100 \cdot \ln(2)$ .

Tristan Simbulan sent in the following solution you may find better:

Let  $v$  be the volume at time  $t$  and let  $dv/dt$  the volume rate of change at time  $t$ .

Volume rate of change = rate in - rate out at time  $t$ . rate in = 1 gal. per second, rate out =  $v/100 \cdot 1$  gal. per sec.

Therefore  $dv/dt = 1 - v/100 \cdot 1 \implies dv = 1/100 \cdot (100 - v) dt \implies dv/(100 - v) = dt/100 - \ln(100 - v) = t/100 + C$ .

At  $t = 0$  and  $v = 0$ ,  $C = -\ln 100$ .  $v = 100 \cdot \{ 1 - e^{-(t/100)} \}$ , let  $v = 50$ .

Find value of  $t$ :  $e^{(t/100)} = 2$ ,  $t = 100 \cdot \ln 2$

## MYSTIC AQUARIUM PROFESSIONAL DEVELOPMENT WORKSHOPS

### TEACHING SCIENCE AT THE SHORE

**Saturday April 19, 2009; 11:00 am to 2:00 pm**

**Cost: \$20**

Gain the knowledge and confidence to lead a coastal field study on your own! Join us as we investigate the rocky shores and golden marshes of Hammonasset State Park in Madison, CT. Get to know the flora and fauna that live in these marine habitats while participating in population studies and samplings. This is a perfect way to share the wonder, history and importance of Long Island Sound with your students.

### OCEAN INQUIRY

**Thursday May 7, 2009; 9:00 am to 3:00 pm**

**Cost: \$25**

Prepare to celebrate World Ocean Day on June 8 and your personal connection to the sea. Learn how to

incorporate inquiry and the study of oceans into your curriculum using scientific research. This workshop is aligned with science frameworks and standards and is in collaboration with CT Sea Grant. Presenter TBD. You'll take home numerous marine resources for immediate use in your classroom. Bring your own lunch or purchase lunch at the aquarium's Penguins Café. A special raffle prize will be offered at the end of the workshop.

To register for either workshop, please call (860) 572-5955 ext. 520.

**Rebecca Giantonio**, Assistant Director, Media & Public Relations

Mystic Aquarium & Institute for Exploration, 55 Coogan Blvd., Mystic, CT 06355 (860)

## BEACH BALL

*Submitted by: Carol KSCarol@email-removed*



One game we play is with a beach ball. I write out the numbers on the top and bottom sections. Throw the ball gently to a child and they have to add the numbers where their thumbs are. Hard to finger-count when you are holding a big ball. Can be used for subtracting and put vowels in the sections and it becomes language arts! Another game is to sit in a circle and count to a specific number. Whoever says that number has to go to the center of the circle. Keep going till there are two left. Everyone yells showdown and they play till we have a winner and winner number two (no losers). I have done this with counting by 2's, 5's, 10's, days of the week, months, etc. Easy and quick and they really like it a lot! Just 2 for now as it's late.

## COUNTDOWN

*Krista Damico, Chicago GEAR UP Alliance*

*Loyola University, School of Education, Chicago KDAMICO@LUC.EDU*

Countdown is a free educational website devoted to effective mathematics instruction for teachers, parents, and students. The site features over 800 instructional math video clips and printable worksheets, categorized by NCTM standards. The 4-7 minute clips are from our television show, originally broadcast in Chicago. The off-camera voices you hear in the movies are elementary school students who phoned in to help solve math problems.

<http://COUNTDOWN.LUC.EDU>

Countdown can be used for everything from teacher professional development to student homework help.

### **For teachers (and tutors), Countdown offers:**

- lesson plan examples
- demonstrations of manipulatives and graphing calculators -ideas for using basic computer software in math instruction -games to engage students while practicing various math concepts -ways to use children's literature in math class -quick refreshers on a wide variety of topics

### **For students, Countdown offers:**

- supplemental instruction beyond the classroom
- material ranging from basic to challenging -the chance to review and preview math concepts

### **For parents, Countdown offers:**

- enjoyable games and worksheets for the student to do at home -the chance to see a quick review of a concept before trying to help the student -introductions to concepts in case the student is absent for a day
- exploratory opportunities for mathematically talented children -explanations of algebraic concepts needed to obtain a GED

The Assessments section of the site offers basic curriculum guides for algebra and geometry -- a quick way to access all of the movies on the site relevant to those subjects.

We are excited to share this resource with you. Feel free to share it with your colleagues. Please let us know if you incorporate Countdown in your work. We welcome feedback on the site and ideas for improvement.

### **e-ALERTS!**

When you sign up for e-Alerts, this will allow you to subscribe to topics on a site and receive email notification. To sign up for eAlerts, go to the "Subscribe now or update your e-Alerts" link on the lower left hand side of the CT State Dept of Education website. This will bring up a page that lists all the eAlerts available to subscribers. Select the checkbox next to the eAlerts you wish to receive.

## THE 1,2,3S OF MEETING STUDENT NEEDS

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*Submitted by Linda Wade, Madison Public Schools*

As any teacher sits at her desk trying to plan a lesson that meets the different needs of her students, the latest acronyms are probably swirling around in the teacher's head: NCLB, IEP, PPT, LRE, RTI, and SRBI... The acronyms reinforce what this teacher recognizes as best practice for students-meeting the unique needs of all students.

At any given point in time a teacher may feel overwhelmed in meeting the learner demands within a given class. This is especially true for today's math teachers. Because the diversity of need is easily identifiable in math class, the need to differentiate is pervasive in teaching mathematics. This process of meeting diverse learner needs doesn't have to be overwhelming; it can be as easy as counting to three.

### ONE

The only way one can determine learner needs is through assessment. Traditionally, assessments have most frequently been equated to summative assessment-an end of the unit test to determine if students are able to demonstrate knowledge taught. This type of assessment has a place, but is limited in helping to meet the needs of students. Other useful assessments include learning style inventories and formative assessments, including observation. Learner preferences can be assessed formally or informally and are best initiated at the start of the school year so that both the teacher and the student gain information regarding how each individual student learns best. Not only are learning style indicators informative, but formative assessments, which should be ongoing throughout a unit of study, are also helpful. These assessments will allow a teacher to monitor learning and adjust teaching practice to ensure skill acquisition.

### Learning Style Inventories

Learning style inventories are designed to assess how students learn best. They can be purchased and used as a standardized assessment at the beginning of the year. The information yielded from these assessments allows a teacher to determine a dominant domain for learning. This delineates which students learn best through the various learning domains. For example, some students are kinesthetic learners who need to be active to learn. They may learn best by becoming the actual digits as they explore multiplication. Other students may be visual, learning best through organizing information into graphic representations. These students may benefit

from creating a visual map to help them solve long division. Students are different and consequently learn differently. These inventories can be very helpful in determining learning styles.

### Informal Teacher-Made Assessment of Learning Preference

Another means to assess learner modality preferences is through the use of teacher made inventories and/or exploration activities. The teacher made inventory may include questions such as working preference (individual or group), learner modalities, and noise level preferences (quiet vs. active). The teacher could also design a questionnaire and have students individually answer the questions. Another teacher-made alternative could include specially designed activities which tap into the various domains. During these activities, the teacher would then observe the students and how they respond. Upon completion of these activities, a teacher could have students reflect on task preference. For example, after students draw a diagram or listen to a presentation, they are able to articulate which activity was most enjoyable and allowed for the greatest learning.

### Observation

One of the best ways to determine if students are acquiring the skills being taught is through observation. This could be done throughout a lesson by checking body language. Most teachers are experts in determining when students are looking puzzled. This informal method of assessment throughout a lesson could also be conducted by giving students a question to quickly respond to or a problem in which to solve. A quick look around the room will indicate which students are still confused. This type of quick formative assessment allows a teacher to plan for future instruction within the lesson or unit.

### TWO

The second step in meeting individual learner needs is through planning. Based on the information acquired from assessing students, one can then plan lessons around student needs. Differentiating can be accomplished with a flowing lesson design, starting with the whole class, moving to small group, and then returning back to whole class. Designing your lesson in this way allows for differentiating without the feeling of being too overwhelmed. A suggested lesson outline utilizing this design follows:

## Whole Class

Initiation-During the initiation phase of the lesson, the teacher's goal is to establish interest to learn. It's the "hook" often needed to engage students. Since the mind enjoys new experiences, something such as a prop, a picture book, a chart, or a riddle connected to the concept being taught makes a great first impression and creates interest in the learner. During this phase, the teacher could have students "wonder" why they are being shown the object, read a book, shown a chart, or given a riddle to solve. The students are then able to make a prediction regarding what they will be learning. This could be done orally or be written in a math journal.

Establishing the Goal- Students benefit from knowing the objective of the lesson during the start of class. This gives them a clear picture of where the lesson is headed and meets the needs of those students who are whole-to-part learners, who gain understanding through sharing the "big picture" rather than the individual parts in which they must connect into a whole.

Make Real World Connections- Students also benefit from knowing how newly acquired concepts could be applied. By sharing when in life they will need to use what they are learning, a learner sees the value and purpose for learning. In addition, research has shown that connections create a stronger bond within the brain and that these connections are needed for easier retrieval of prior learning.

Have Students Formulate Questions for Learning- During this section of the lesson design, the teacher encourages the students to ask themselves questions which they desire to have answered during the lesson. This practice could be done orally or written out in a math journal, engaging students in their own learning process. In other words, students are active learners as opposed to passive learners.

Establish the Small Group Plans- During this part of the lesson, students are given the "plan". This allows for students to understand the specifics which will take place in the smaller groups. This is especially helpful if one group is working independently. Group members are selected and planned for according to either learning styles or learner concept levels.

## Small Groups

Learning Styles- When one is considering learning styles, a learning inventory, as mentioned in step one could be used. Based on the results of the inventory, placement in groups could be made. For example, one

group can be given a kinesthetic activity, while another works on a visual activity.

Concept Levels- Another way to differentiate could be based on a quick "check-up" conducted at the end of the previous class. Those students demonstrating knowledge of the concept could then be put in one group and given an extension activity, while the other group reviews the concept not yet mastered.

## Whole Class

Reflection- When coming together as a whole class at the end of the lesson, reflection is a good way for students to assimilate into their prior knowledge, what they have just learned. This can be done orally or in math journals and then shared. This time could be very specific, asking students to write three things that they learned and any new vocabulary they have acquired, or it can be general, having students write and or share individual thoughts.

## THREE

The last step of every lesson should always be used for teacher reflection. Without this step, future teaching and learning will never be improved. This time should be spent thinking about the lesson implementation, the way in which the material was presented and how this assisted student learning. In other words, how effective was the lesson. It is a time to reflect on the connection between teaching and learning and improving this task so that student learning is maximized. At times this can be enhanced through a quick question, such as asking students to report on how effective their learning was or it can be assessed through the students' reflections. Generally speaking, if students can articulate what it is they have learned, this indicates that the lesson has most likely been achieved with student needs being met. Based on student input and review of the lesson design, reflection can lead to positive outcomes for future lessons. Just like students, teachers too should always be learning.

## References:

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## ONLINE MATH TUTORING: DISCUSSION OF CURRENT OFFERINGS

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**Author:** Isaac Berniker is a former middle school and current high school math teacher at American Indian Public Charter School of Oakland, California. He previously worked as a face-to-face tutor for Sylvan Learning Centers, and he currently works part time with Hotmath.com.

**Summary:** Online math tutoring is available from many providers. Among these offerings, there are considerable differences in tutoring styles, mechanics, quality, and pricing. In addition, there is currently a controversy about using offshore vs. US tutors. This article discusses the aspects of online math tutoring and suggests that (1) the primary benefit of online tutoring is that a student can get instant personal help, 24/7, and (2) the most effective use of online math tutoring occurs when the tutoring is initiated from an online curricular or homework-help math problem.

**Note to the editors/reviewers:** The tutoring companies described in this article have been shown a draft of the article and most have made suggestions and corrections both as regards their company mention and the article overall.

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Math tutoring has existed for hundreds of years. For example, in 1683, Jacob Bernoulli supported himself by working as a tutor. In 2001, one estimate of revenues for the largely cottage-industry business of tutoring school children was \$2B annually. At that time, major commercial participants in the business of tutoring (including SAT prep) included Score, Sylvan Learning, and Princeton Review.

Tutoring became available over the Internet in the 1990's. Commercial companies such as tutor.com, smarthinking.com, and tutorvista.com emerged as leaders and were the subject of a good deal of media attention including nationwide print and TV coverage. Online tutoring has been offered as an alternative to face-to-face tutoring on the basis of immediate accessibility, elimination of travel inconvenience, and price.

Now, other commercial companies, either on their own or in partnership with one of the above companies, also offer math tutoring. Examples include britannica.com and educate.com.

A few nationwide non-profits dedicated to improving education for students in low income families have made online tutoring available to their clientele. Many of the for-profit and non-profit companies receive funding from the federal government. An Internet search can identify most of the providers.

The online tutoring companies will tutor in most academic subjects, but math constitutes the majority of their actual tutoring usage. Tutor.com makes arrangements with public libraries to provide free access to online tutors, and also sells tutoring to parents or students in retail packages based on an hourly rate. Tutorvista.com sells unlimited tutoring at a flat monthly rate. Smarthinking.com offers tutoring to college and high school students via arrangements with colleges and high schools, and also has retail packages based on an hourly rate. Some companies, such as globalscholar.com, offer a listing of tutors with their background, client ratings, and prices for students or parents to select a compatible match.

Student-tutor communication over the Internet for math tutoring generally uses an "online whiteboard" which allows the student and tutor to draw figures, graphs and math typography with a mouse or stylus. Some whiteboards have convenient aids for math typography and graphs. Tutor-student sessions take place via typing back and forth using a built-in instant messaging protocol, and some companies allow voice communication as well, using a headset. Several online tutoring companies experienced with both voice- and keyboard-communication believe that the setup time for voice is prohibitive. They also believe that students feel more "anonymous" with the instant messaging and thus are more willing to risk asking questions to gain understanding, with less worry about being judged or embarrassed.

The styles of online math tutoring vary by company and generally mimic the various pedagogical approaches of face-to-face tutoring. Most of the online tutoring companies specialize in homework-help tutoring as differentiated from ongoing, relationship-building, appointment-based remedial or accelerated tutoring. Personalized math homework help with 24/7, immediately-available, professional online tutoring meets

student needs in a way that scheduled classes or sessions simply cannot: learning can occur at the precise moment of a student's greatest interest or need.

For those online companies providing online, just-in-time homework-help tutoring as differentiated from appointment-based tutoring, a balance must be struck between having tutors simply work through the problems didactically, and having them lead the student through the process by asking questions. Most of the online providers have defined a pedagogy that satisfies teachers as well as students (see figure for a sample session).

An innovation in online math tutoring results from integrating the access to tutors with existing curricular or homework-help math content. Apangea Learning may have been the first company to do this. The Apangea software monitors students using their curriculum and will connect a student with an online tutor when needed. Hotmath.com, a homework-help resource with online, step-by-step textbook solutions, provides an "Ask-a-Tutor" button next to their textbook-correlated solutions so that a student can ask a personal question about the specific material. Carnegie Learning now offers on-demand live math tutoring with their online curriculum. In cases such as these, the added benefit of integrating tutoring with math content is that the tutor has an instant context for a student question and thus can quickly establish an effective dialogue. Hotmath estimates that the efficiencies of integrating content with online tutoring reduce the need (and cost) of tutoring by as much as 80%.

In the case of Hotmath.com, schools who purchase their tutoring can specify a pedagogy directive for the tutors, e.g., do not help with even-numbered homework problems, do not help with more than one problem per session, etc. A style of tutoring used by both Hotmath and Carnegie Learning is called 'student centric' and maintains the student interest with simple 'success questions' that keeps the student engaged without driving them away, and assures the tutor that the student is following along. That style is suggested by the session depicted in the figure.

The screenshot shows a web browser window with a math problem: "Find three consecutive odd integers whose sum is 105." The problem is being solved step-by-step on a whiteboard:

$$N + (N+2) + (N+4) = 105$$
$$(N+N+N) + (2+4) = 105$$
$$3N + 6 = 105$$
$$3N + 6 - 6 = 105 - 6$$
$$3N = 99$$
$$N = 33$$

On the right side, there is a chat log with the following messages:

- Student: Is that you for me. What does that mean?
- Tutor: It shows you.
- Student: Any questions so far?
- Student: No.
- Tutor: And what is it then?
- Student: 33.
- Tutor: Correct!
- Tutor: So now the problem is easy to solve.
- Tutor: And it = what?
- Student: 33.
- Tutor: Yes.
- Student: I see. And the three numbers are 33, 35, and 37?
- Tutor: Correct!
- Tutor: Do you have any more questions?
- Student: No. You've been GREAT! Thx!
- Tutor: You are welcome.

Opinions vary about utilizing tutors from outside the U.S. Some states and school districts require that their tutoring funds for student tutoring be spent locally. Political considerations aside, most would agree that the quality of tutoring results directly from hiring practices and training of the tutors, not their nationality. Assuming that equivalently-qualified tutors can be found in many countries, this author believes the considerations to be a) that offshore tutors can be less costly due to lower international salaries, b) that cultural differences create occasional inefficiencies in communications, and c) that the tutor must be proficient in the language of the student.

When schools purchase online tutoring, administrative support is important. The leading companies provide access for the teachers to all recorded student sessions, allow the setting of per-student usage limits, and provide summary reports about use of the service.

Any question about safety of students with online tutoring is answered this way: tutoring sessions are monitored and recorded, and tutors are prevented from collecting or providing any personal information that may lead to communication outside of the tutoring platform.

Math tutors are not held to the standards of math teachers, and one must not expect as much from a tutor as from a competent, certified teacher. However, the companies with a good reputation are selective in hiring and provide ongoing training, monitoring and weeding out of their tutors and provide a very respectable, beneficial service.

For the student who has a question, and has no one else to ask at the moment of curiosity or need, a 24/7 online math tutor can save the day!

## GREETINGS!

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From Jim Donatelli your TI Educational Technology Consultant and Terri Viana, your TI Educational Product Coach! Here is our TI March update for New England:

Terri Viana is your Dallas-based Educational Products Coach. While Jim is often on the road visiting educators in person, Terri is available by phone to answer your product and professional development questions as well as conduct WebEx-based product training.

Jim Donatelli is available to visit your school, discuss your needs and recommend TI solutions. If you wish to schedule a visit, send an email to Jim [jdonatelli@ti.com](mailto:jdonatelli@ti.com)

### **T<sup>3</sup> Regional Conference; October 2-3, 2009**

Massachusetts Academy of Math and Science; Worcester, Massachusetts...more in upcoming newsletters; Contact Jackie Bonneau [bonneau@wpi.edu](mailto:bonneau@wpi.edu)

### **NCTM Regional Conference: October 22-23, 2009**

Hynes Veterans Memorial Convention Center and Sheraton Boston Hotel; Boston, MA

### **TI Summer 2009 Professional Development**

Here are descriptions for the two TI-Nspire™ Technology Courses being offered for summer, 2009:

#### **Getting Started with TI-Nspire – Workshop Description**

The Getting Started with TI-Nspire™ workshop runs for a day and a half (9 hours). It is designed for teachers who have not attended TI-Nspire professional development before.

This course, held at nationwide locations and facilitated by T<sup>3</sup> Instructors, will focus on the integration of TI-Nspire technology into the classroom with the use of content-specific activities. Each participant will receive printed workshop materials, a TI-Nspire handheld and TI-Nspire Computer Software Teacher Edition as part of the registration fee.

#### **Using TI-Nspire in your Classroom**

This 3-day course is designed for teachers who have already attended TI professional development on TI-Nspire. The 1.5 day (9 hour) Getting Started with TI-Nspire workshop qualifies as a prerequisite for this course as do the Exploring Math with TI-Nspire 3 day courses offered in 2007 and 2008. When you register for this course you will be asked to indicate that you have already taken one of the prerequisite courses. Each location will offer Using TI-Nspire in Your Classroom in specific math subjects. Check the location specific

information to see which subjects are being offered at that locale. Since participants will have already taken a TI-Nspire course which provided the handheld and computer technology, TI is not offering any technology purchase as part of this 3 day course.

### **June 23-24, 2009 – Sanford, Maine**

*Location Notes: This southern Maine location is within one and a half hours driving time of the Manchester, NH area and the North shore of Massachusetts*

Workshop Title: ***Getting Started with TI-Nspire.***

Workshop Description: Each participant will receive a TI-Nspire™ Handheld and TI-Nspire Computer Software (included in the Registration Fee). Workshop sections will be offered in Algebra II and Middle Grades Math

Dates: June 23-24, 2009

Location: Sanford High School; Sanford, Maine

Workshop Hours: Tuesday, June 23 from 8:30 AM until 3:30 PM; Wednesday, June 24 from 8:30 AM until 11:30 AM

Cost: \$225.00 which includes a TI-Nspire handheld and Computer Software

Registration:

Register online at <http://www.tinspire2009.com/>

### **June 25-26, 2009 – Sanford, Maine**

*Location Notes: This southern Maine location is within one and a half hours driving time of the Manchester, NH area and the North shore of Massachusetts*

Workshop Title: ***Getting Started with TI-Nspire.***

Workshop Description: Each participant will receive a TI-Nspire Handheld and TI-Nspire Computer Software (included in the Registration Fee). Workshop sections will be offered in Algebra I

Dates: June 25-26, 2009

Location: Sanford High School; Sanford, Maine

Workshop Hours: Thursday, June 25 from 8:30 AM until 3:30 PM; Friday, June 26 from 8:30 AM until 11:30 AM

Cost: \$225.00 which includes a TI-Nspire handheld and Computer Software

Registration:

Register online at <http://www.tinspire2009.com/>

**June 26-27, 2009 – New Britain, CT (CCSU)**

Workshop Title: *Getting Started with TI-Nspire.*

Workshop Description: Each participant will receive a TI-Nspire Handheld and TI-Nspire Computer Software (included in the Registration Fee). Workshop sections will be offered in Algebra I, Algebra II, Geometry

Dates: June 26-27, 2009

Location:

Central Connecticut State University ; New Britain, CT

Workshop Hours: Friday, June 26 from 8 AM until 3:00 PM; Saturday, June 27 from 9-12

Cost: \$225.00 which includes the TI-Nspire handheld and Computer Software

Registration:

Register online at <http://www.tinspire2009.com/>

**June 29-30, 2009 – Worcester, Massachusetts**

Workshop Title: *Getting Started with TI-Nspire.*

Workshop Description: Each participant will receive a TI-Nspire Handheld and TI-Nspire Computer Software (included in the Registration Fee). Workshop sections will be offered in Algebra I, Algebra II, Geometry, Advanced Math and Physics

Dates: June 29-30,2009

Location: Massachusetts Academy of Math and Science; Worcester, MA

Workshop Hours: Monday June 29 from 8 AM until 3:00 PM; Tuesday, June 30 from 9-12

Cost: \$225.00 which includes the TI-Nspire handheld and Computer Software

Registration:

Register online at <http://www.tinspire2009.com/>

**July 1-3, 2009 – Worcester, Massachusetts**

Workshop Title: *Using TI-Nspire in Your Classroom*

Prerequisite: Getting Started with TI-Nspire or equivalent.

Workshop Description: Each participant will choose a subject specific session. Workshop sessions will be offered in Algebra I, Algebra II, Geometry, Advanced Math and Physics

Dates: July 1-3,2009

Location: Massachusetts Academy of Math and Science; Worcester, MA

Workshop Hours: 8-3 each day

Cost: \$250.00

Note: No technology is provided in this course. Participants are expected to bring a TI-Nspire handheld

Registration:

Register online NOW at <http://www.tinspire2009.com/>

**August 3-4, 2009 – Bronx, New York**

Workshop Title: *Getting Started with TI-Nspire.*

Workshop Description: Each participant will receive a TI-Nspire Handheld and TI-Nspire Computer Software (included in the Registration Fee). Workshop sessions will be offered in Algebra I and Geometry

Dates: August 3-4, 2009

Location:

IN-Tech Academy; 2975 Tibbett Ave; Bronx, NY 10463

Workshop Hours: August 3 from 8:30 AM until 3:30 PM; August 4 from 8:30 - Noon

Cost: \$225.00 which includes the TI-Nspire handheld and Computer Software

Contact: Rose Fairweather-Clunie at 718-432-4300

Registration:

Register online at <http://www.tinspire2009.com/>

**August 5-7, 2009 – Bronx, New York**

Workshop Title: *Using TI-Nspire in Your Classroom*

Prerequisite: Getting Started with TI-Nspire or equivalent.

Workshop Description: Each participant will choose a subject specific session. Workshop sessions will be offered in Algebra I and Geometry

Dates: August 5-7, 2009

Location: IN-Tech Academy; 2975 Tibbett Ave; Bronx, NY 10463

Workshop Hours: 8:30 AM -3:30 PM each day

Cost: \$250.00

Contact: Rose Fairweather-Clunie at 718-432-4300

Note: No technology is provided in this course. Participants are expected to bring a TI-Nspire handheld

Registration:

Register online at <http://www.tinspire2009.com/>

**August 20-21, 2009 – West Springfield, Massachusetts (Springfield area)**

Workshop Titles: *Planning is underway for this event. We expect to offer 2-4 hands on three hour sessions each on TI-Nspire, TI-84, and TI-Navigator.*

Workshop Descriptions: Watch for final workshop titles and descriptions in upcoming newsletter updates

Dates: August 20-21, 2009

Location: Lower Pioneer Valley Educational Collaborative, West Springfield, MA

Workshop Hours: 8-3 each day

Cost (tentative): \$45 for one day; \$75 for both days

Registration: Watch for registration information in upcoming newsletter updates

More Information: Contact Scott Trahan mail to: sltrahan@gmail.com

**August 24-25, 2009 – New Rochelle, New York**

Workshop Title: *Getting Started with TI-Nspire.*

Workshop Description: Each participant will receive a TI-Nspire Handheld and TI-Nspire Computer Software (included in the Registration Fee). Workshop sessions will be offered in Geometry and Advanced Math

Dates: August 24-25, 2009

Location: College of New Rochelle; 29 Castle Place; New Rochelle, NY 10805

Workshop Hours: August 24 from 8:30 AM until 3:30 PM; August 25 from 8:30 - Noon

Cost: \$225.00 which includes the TI-Nspire handheld and Computer Software

Contact: Michelle Merriweather at 914-654-5462 or mmerriweather@cnr.edu

Registration:

Register online at <http://www.tinspire2009.com/>

**August 26-28, 2009 – New Rochelle, New York**

Workshop Title: *Using TI-Nspire in Your Classroom*

Prerequisite: Getting Started with TI-Nspire or equivalent.

Workshop Description: Each participant will choose a subject specific session. Workshop sessions will be offered in Geometry and Advanced Math

Dates: August 26-28, 2009

Location: College of New Rochelle; 29 Castle Place; New Rochelle, NY 10805

Workshop Hours: 8:30 AM -3:30 PM each day

Cost: \$250.00

Contact: Michelle Merriweather at 914-654-5462 or mmerriweather@cnr.edu

Note: No technology is provided in this course.

Participants are expected to bring a TI-Nspire handheld

Registration:

Register online at <http://www.tinspire2009.com/>

**Taft Education Center Summer Courses Incorporating TI Technology**

The Taft Education Center in Watertown, Connecticut offers weeklong courses from June 28, 2009 through July 31, 2009 which incorporate TI technology in the course. AP and Non-AP Workshops are offered. For a complete list of available courses and schedules go to <http://www.taftschool.org/tec/default.aspx>

**TI-Nspire™ Handheld On Site Demonstrations**

This is one efficient and effective way to learn about the new TI-Nspire handheld and all of its exciting capabilities for teaching and learning. Two demo options are available: 1) A 1-2 hour overview (hands on) or 2) A two or three hour hands on workshop. Not sure if you are interested? Click here to see a brief overview of TI-Nspire technology. Request an onsite demo today.

**2009 Syllabus Special Offer**

Get educator support materials for FREE when you put TI-Nspire™ or TI-Nspire CAS handhelds on your syllabus/supply list. This is a per teacher offer so share this information with your colleagues. Here is what you will receive:

CliffsNotes® Guide to TI-Nspire technology

TI-Nspire activities booklet

TI Connect-to-Class™ teacher software kit with Belkin hub (\$35 value)

Follow this link to submit your syllabus online [http://education.ti.com/educationportal/sites/US/nonProductSingle/syllabus\\_program.html](http://education.ti.com/educationportal/sites/US/nonProductSingle/syllabus_program.html)

**TI Connect-to-Class™ Kit for TI-Nspire Customers**

Send and redistribute TI-Nspire documents to multiple students simultaneously. Collect and delete documents from students' handhelds. Let students transfer their work to the educator quickly and easily. More

effectively manage TI-Nspire documents for multiple class periods by easily resetting the previous class period's work. Quickly transfer TI-Nspire operating system upgrades to multiple student handhelds at the same time. Students simply connect their handhelds to the educator's computer through USB hubs provided with the software. Learn more, including how to get it, here.

#### **For TI-83 Plus, TI-84 Plus and TI-89 Users**

Take advantage of the wealth of prepared math and science content activities for use with your TI graphing calculators. Hundreds of prepared activities for most math and science content, grades 6-12. Lesson plans too! Click Activities Exchange. If you would like an Activities CD for the TI-83 Plus, TI-84 Plus and TI-89 families of calculators just send me an email and request an "Activities CD." Also let me know if you need posters or overhead transparencies for your TI-84 Plus or TI-89. Posters and transparencies are no longer available for the TI-83 Plus.

#### **District Action Plan and Grant Writing Workshop**

Contact me if you would like to schedule a **TI-District Action Plan/Grant Writing Workshop** for your school or district. There is **NO CHARGE** for this workshop. Workshop will focus on the following:

Identify your current status with regard to TI Technology,

Identify and prioritize needs for TI Technology and/or Professional Development,

Develop a timetable and specific action items to meet those needs,

Review federal, state, and local funding sources available to fund the District Action Plan,

Discuss specific grant writing strategies.

Participants must include the following individuals:  
District person responsible for writing grants, District Curriculum Coordinator and/or Mathematics Supervisor and Mathematics Department Chairs for Middle and High School.

Call 1-800-TI-CARES (800-842-2737) for all Customer Service and Support Needs

Monday - Thursday: 8 a.m. - 7 p.m. Central Standard Time

Friday: 10 a.m. - 7 p.m. Central Standard Time

## **A TEACHER'S DASH**

*Copyright 2007 Linda Ellis*

It's been said the dash on a headstone between the dates of birth and death represents each step we'll take on earth ...and every single breath.

We know the date when we were born, but the following date can't be foreseen and all the days that we will live are in that little dash in between.

Though we all may strive to prosper during our time here on earth, it isn't the money in our bank account that measures what our dash is worth.

Some deem themselves "successful" if they can spend in large amounts, but how you spend your only dash is all that really counts.

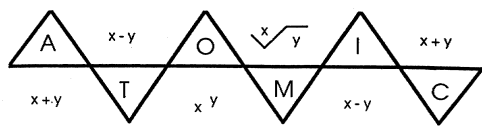
When young minds want to understand what is just beyond their reach, a special soul is called upon to enlighten...and to teach.

A teacher chooses her career not for prestige, wealth or cash, but because her heart is telling her this is how to live her dash.

For she receives true satisfaction from guiding and from giving; fulfillment found in making a life... and not just making a living.

A good teacher has a tendency to do more than what's required to prepare and send into this world every "dash" that she's inspired.

Teachers make a difference in each young mind they embrace; they mold our future in their classrooms and make the world a better place.



ATOMIC  
 PO Box 9583  
 Forestville, CT 06011-9583

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## ATOMIC TEACHING GRANT 2008-2009

### Background

The Associated Teachers of Mathematics in Connecticut supports the goals outlined by the National Council of Teachers of Mathematics (NCTM) in its publication *Principles and Standards for School Mathematics*. In order to encourage widespread involvement in effecting positive change in our mathematics classrooms, a grant for up to \$500 will be awarded to a maximum of six Connecticut educators per calendar year who are associated with ATOMIC through either individual or school memberships. These grants are designed to provide funds directly to teachers for projects that promote excellence in mathematics education.

### Purpose

Grants will be awarded for proposals that focus on designing new curricula, exploring assessment possibilities, enhancing the learning environment, or in any way promoting the acquisition of mathematical power by our students.

### Criteria

A selection committee will evaluate the proposals on the basis of how effectively they support the NCTM Standards in the aforementioned publication. Additional consideration will be given to innovation and to the feasibility of executing the plan. This grant offers the opportunity to enrich or approach curriculum in an innovative way and to stimulate creative teaching techniques in the classroom. The selection committee will use the following general criteria when screening applications.

The project supports the NCTM Standards

The project directly involves students

The project is not solely for the purchase of office supplies

The project is submitted in correct format, including a statement of purpose, project description, materials used, an evaluation plan, a description of how it supports NCTM Standards, and budget

The proposal is signed by the school principal

### Follow-Up

It will be the responsibility of each awardee to make a written report to ATOMIC at the completion of the school year for which the award was given. This report should describe and evaluate the project as it was actually implemented. The article will be published in the ATOMIC Journal or Newsletter to inform members of projects undertaken with ATOMIC Teaching Grants. Follow-up articles should be mailed to:

Christina Lepi  
 c/o Farmington High School, Mathematics Department  
 10 Monteith Dr  
 Farmington, CT 06032

### Deadline

The proposal, personal application, and statement of institutional commitment may be submitted at anytime. The evaluation committee will endeavor to reach a decision within 30 days of receipt of the application.

### Most Recent Awardee

Brennan Glasgow

Region 10

Lake Garda Elementary and Harwinton Consolidated Purchase copies of the supplementary text "Children's Mathematics: Cognitively Guided Instruction" for professional development of all teachers in Pre-K through grade 2.

*The ATOMIC Grant Proposal Form can be found on [www.atomicmath.org](http://www.atomicmath.org)*