Texas Mathematics Teacher

Volume LIX Issue 1 Spring/Summer 2012

Find the Mathematics...

photo by Mary Alice Hatchett

... in a pasture

see page 17

Student Activity
see page 20

QR Code Scavenger Hunt
see page 10

Puzzle Corner and Quotes
see page 14

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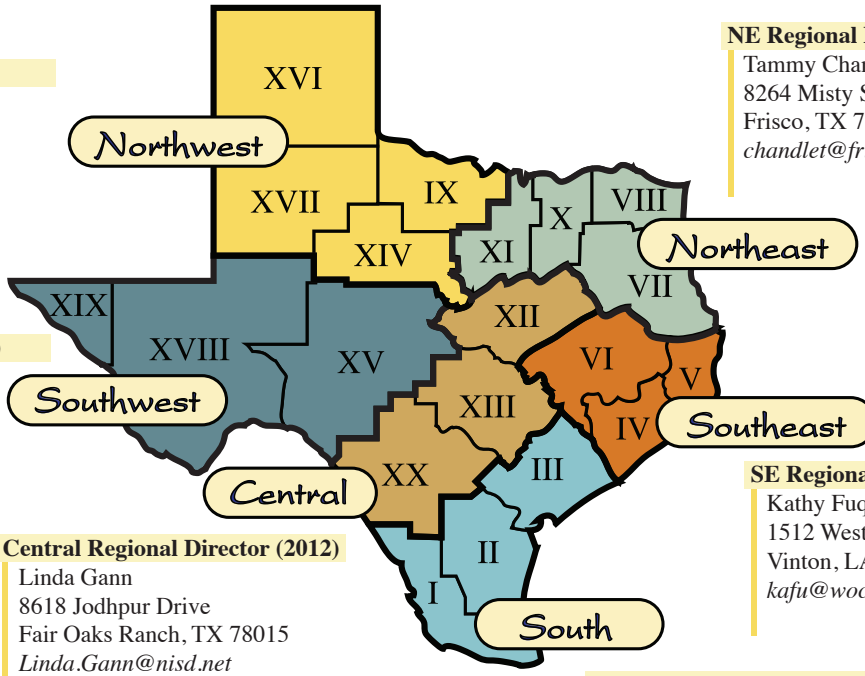

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Texas Mathematics Teacher

A PUBLICATION OF THE TEXAS COUNCIL OF TEACHERS OF MATHEMATICS

Volume LIX Issue 1 **Spring/Summer 2012**

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photograph by Mary Alice Hatchett,
Independent Consultant, Georgetown, TX

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All applications (including TCTM membership) are available online at <*www.tctmonline.org*>.

Letter from the President

Dear TCTM members,

The weather is warmer; and even though there are more hours of daylight, it does not seem possible to get everything done. I am sure you are preparing lessons, teaching, attending meetings, testing, and preparing for next year.

If you are looking for inspiration for some good lessons, try the NCTM website. One of my favorite areas is Student Explorations in Mathematics. The current issue highlights the activity now titled: Do You Want to Be a Millionaire?

"This activity is a reworking of the Student Math Notes (SMN) activity "Are You Interested in Stretching Your Dollars?" from November 2001. A 2010–2011 user survey identified the original activity as one of the most popular SMN activities in the current collection of over seventy activities available at www.nctm.org/sem (click on back Issues). On the basis of this feedback, the activity was selected for a "face-lift" and now includes suggested solutions, teaching notes, and recommended technology applications. Do You Want to Be a Millionaire? addresses the timely topic of financial literacy. Back issues will give you ideas for other activities.

Another area I always find ideas in is Lessons and Resources. There you will find sections on lessons and teaching, problems, teaching tips, and a family corner. The resources are divided into elementary, middle and high school.

As you prepare for testing and for using data obtained from testing, you can find much information online. Websites you might want to visit include: the Texas Education Agency, www.tea.state.tx.us, TEA's YouTube channel, *<www.youtube.com/user/TxEdAgency>* and Project Share *<projectsharetexas.org>*. These sites have information in print and video.

With all the things you need to accomplish you may need some stress relief, so just for fun you may be interested in one of NCTM's recent announcements that KenKen® Puzzles are on Illuminations. Quoting the website,

Rev up your grey cells every day with a KenKen puzzle! These mind exercises combine the logic of Sudoku with arithmetic operations. Now, thanks to an agreement with Nextoy LLC four new KenKen puzzles will be posted daily—that's every day, Monday through Sunday—on the Illuminations site. The daily puzzles range from easy to difficult, with some involving only addition others using all four operations. You can solve the puzzles online or print them for your students. Solutions to each puzzle will be posted the next day. Be sure to stop back daily to check your answers and get four new puzzles!

If you are looking for more puzzles which can be used with students turn to page 14 in this issue of the *Texas Mathematics Teacher* for the Puzzle Corner. You can find more puzzles in back issues of *Texas Mathematics Teacher* on the TCTM website *<tctmonline.org>*. Recent issues of the *Texas Mathematics Teacher* feature "Find the Mathematics" with photographs on the cover and ideas for using the photograph in the classroom.

Of course I am sure you are planning on attending CAMT this summer. This will be a bittersweet CAMT for me. I will hand over the President's gavel to Mary Alice Hatchett during the business meeting and reception. I have really enjoyed holding the office of president, but will be relieved to hand over the responsibilities. I know Mary Alice is going to make a great president so I have no concerns about leaving the reins of office in her very capable hands. As usual I will spend most of my time at CAMT in the Exhibit Hall.

For more information about the Conference for the Advancement of Mathematics Teaching (CAMT) go to *<www.camtonline.org>*. Encourage your administrators to attend the Administrators' conference. The early registration deadline is May 15th. Registration costs are higher after May 15th.

Feel free to offer comments, concerns, and suggestions to me at *<trapp@vtxb.com>*.

Sincerely,

Nancy Trapp
TCTM President 2010-2012

Website: *<www.tctmonline.org>*
Facebook: *Texas Council of Teachers of Mathematics*
Twitter: *< TCTM_Updates>*

Affiliate Groups

These are local affiliated groups in Texas. If you are actively involved with them, please send future meeting and conference information to Cynthia Schneider at <*cschneider@austin.utexas.edu*> so we may publicize your events. Contact information for each group is available on the NCTM website, <*www.nctm.org*>. Contact information for regional directors is located on the inside front cover.

NORTHWEST REGION *Service Centers 9, 14, 16, 17*
Angie Watson, Regional Director

Texas South Plains CTM
18th Annual Panhandle Area Mathematics and Science Conference will be held Saturday September 29, 2012 on the West Texas A&M University campus. Vendors can contact Treasure Brasher at <*tbrasher1@suddenlink.net*>; presenters and participants can contact Dr. Kristina Gill at <*kgill@wtamu.edu*>.

CENTRAL TEXAS REGION *Service Centers 12, 13, 20*
Linda Gann, Regional Director

Austin Area CTM
The spring meeting was Tuesday May 8, 2012, beginning at 5:00 p.m. Contact AACTM President Daniel Ritchie, at <*dritchie40@gmail.com*>, or AACTM Treasurer Kelly Meshell, at <*kmeshell@austinisd.org*> for registration.

Alamo District CTM

Central Texas CTM
The CTCTM Fall meeting will be late September or early October 2012. CTCTM will hold a spring conference in February 2013, at the Region 12 Service Center in Waco. Contact: Sandi Cooper President of CTCTM at <*Sandra_Cooper@baylor.edu*> for additional information or visit their website at:<*www.ctctm.org*>.

SOUTHWEST REGION *Service Centers 15, 18, 19*
Veronica Hernandez, Director

Greater El Paso CTM
We are considering morphing the GEPCTM Fall Conference into a symposium on success with the math STAAR/EOC exams. Keep an eye out for more information! GEPCTM is also hosting two social events to bring together area mathematicians. Friday, May 18, 2012 we hosted bowling at Oasis Lanes on Zaragoza 4:30 - 7:00 p.m. Saturday, April 28, 2012 we hosted a family day trip caravan to Carlsbad Caverns (enjoy free admission). For event information and registration please contact: GEPCTM President, Glen Torguson at <*gtorgu@sisd.net*> or Membership VP, Craig Rhoads at <*crhoad@sisd.net*>.

STATEWIDE

Texas Association of Supervisors of Mathematics (TASM) meets in the fall and spring in Austin and at CAMT. Membership is required to register for this meeting. For membership and registration information, please see <*www.tasmonline.net*>.

The Association of Mathematics Teacher Educators of Texas (AMTE-TX) holds its annual meeting at CAMT. For more information contact the current president Colleen Eddy at <*leadership@amte-tx.org*>.

NORTHEAST REGION *Service Centers 7, 8, 10, 11*
Tammy Chandler, Regional Director

East Texas CTM

Greater Dallas CTM
Holds two mathematics contests (W. K. McNabb Mathematics Contests) for students in grades 7 - 12 - one in the fall (early Nov.) and one in the spring (early April). A banquet in May is held for the winners. Contact: Richard Newcomb, <*RNewcomb@cisterican.org*>.

SOUTH TEXAS REGION *Service Centers 1, 2, 3*
Shere Salinas, Regional Director

Coastal CTM
The 8th annual ME by the SEa conference was held at Texas A&M University – Corpus Christi on Friday, June 15, 2012. Online registration is available at
<*domathtogether.com/cctm/registration/?action=register&event_id=1*>
Contact: Faye Bruun, <*faye.bruun@tamucc.edu*>, or see <*cctm.tamucc.edu*>.

CTM @ Texas A&M University at Corpus Christi (Student Affiliate)
Contact faculty advisor Faye Bruun, <*faye.bruun@tamucc.edu*>

CTM @ Texas A&M University at Kingsville (Student Affiliate)
Contact NCTM Representative: Susan Sabrio

Rio Grande Valley CTM
The 47th Annual RGVCTM Mathematics Conference will be on Saturday, November 17, 2012 at the University of Texas - Pan American in Edinburg, Texas. Contact: Nancy Trapp <*ntrapp@vtxb.com*> or see <*www.rgvctm.org*>.

SOUTHEAST REGION *Service Centers 4, 5, 6*
Kathy Fuqua, Regional Director

Fort Bend CTM
Holds a short meeting in August, a fall mini-conference, a spring mini-conference and an end-of-year banquet to serve the districts of Alief, Fort Bend, Katy, and Stafford. Contact: Alena McClanahan, <*alena.mcclanahan@fortbend.k12.tx.us*>.

NATIONAL

National Council of Teachers of Mathematics (NCTM) Regional Conference will be held in Dallas, TX on October 10-12, 2012.

National Council of Teachers of Mathematics (NCTM) Annual Meeting and Exposition will be held in Denver, CO on April 17-20, 2013.

TEA Talks

Hot News

For additional information, refer to the websites listed

Assessment Updates

Current information about the State of Texas Assessments of Academic Readiness (STAAR) program is posted on the following TEA Student Assessment websites:

- For State of Texas Assessments of Academic Readiness (STAAR) Resources go to

  <www.tea.state.tx.us/student.assessment/staar/>.

- For the House Bill 3 Transition Plan go to

  <www.tea.state.tx.us/student.assessment/hb3plan/>.

- For the TEA Update on End-of-Course Assessments from the TASA Midwinter Conference, February 2011 go to

  <www.tea.state.tx.us/student.assessment/tac/>.

- An additional TEA Student Assessment Update PowerPoint presentation from the TASM meeting at CAMT 2012 is available at

  <www.tasmonline.net/Meetings.html>.

- To receive immediate updates from student assessment, sign-up for the listserv at

  <miller.tea.state.tx.us/list/index.html>.

Contact us by e-mail at *<student.assessment@tea.state.tx.us>.*

Contact us by phone at 512-463-9536.

Curriculum Updates

2011-2012 MSTAR Universal Screener

The MSTAR Universal Screener can be accessed through the Texas Math and Science Diagnostic System (TMSDS) at www.tmsds.org. A new data file must be uploaded in order to receive usernames and passwords for the 2012-2013 school year. The TMSDS representative at each regional education service center (ESC) can provide assistance with the upload process and/or assistance may be requested at *<TMSDS@region10.org>.*

The MSTAR Universal Screener is a formative assessment system administered to students in grades 5-8 to inform instructional decisions. The purpose of the MSTAR Universal Screener is to help teachers make two important decisions within the Response to Intervention (RTI) process: (1) are students on-track or at-risk for meeting expectations in algebra and algebra-readiness, and (2) what is the degree of intensity of instructional supports or supplemental interventions needed for students who are at-risk for not meeting expectations in algebra? Results can help teachers identify students who are in need of additional instructional support in their development of knowledge and skills that relate directly to algebra readiness. Teachers will be able to monitor students' risk status by administering comparable forms of the MSTAR Universal Screener in fall, winter, and early spring.

Please contact *<TMSDS@region10.org>* or *<mstarscreener@tea.state.tx.us>* with questions.

Advanced Quantitative Reasoning Course Available

At its January 2011 meeting, the State Board of Education approved for second reading and final adoption 19 TAC Chapter 111, Texas Essential Knowledge and Skills for Mathematics, Subchapter C, High School, §111.37, Advanced Quantitative Reasoning (One Credit). TEKS may be found at

<ritter.tea.state.tx.us/rules/tac/chapter111/ch111c.html#111.37>

Professional Development (Contact your ESC for more information)

- ESTAR (Elementary Students in Texas Algebra Ready)
- MSTAR (Middle School Students in Texas Algebra Ready) Academy I (face to face plus online follow-up modules in Project Share)
- MSTAR Academy I (Part B) Completion
- MSTAR Academy II (focus on Tier II Intervention)
- MSTAR-GATAR (Geometric Approach to Algebra Readiness)
- Algebra I EOC Success Academy
- Geometry EOC Success Academy
- Algebra II EOC Success Academy

MSTAR Intervention Sample Lessons Now Available

MSTAR Intervention Sample Lessons for grades 7 and 8 are now available for download in Project Share *<projectsharetexas.org>*. Please join each of the MSTAR INTV courses in Project Share in order to download the lessons.

MSTAR Intervention lessons target struggling Tier 2 students. The intervention lessons provide a concrete structure to help students learn the foundational skills necessary for success in increasingly complex mathematics curricula.

Each intervention lesson contains several aspects of research-based intervention strategies and lesson design. Additional activities are included for students who need further practice. Please note that these lessons are designed for Tier 2 Intervention and NOT for Tier 1 (core) instruction.

For information about Response to Intervention (RtI) in mathematics as part of the Texas Algebra Ready (TXAR) Initiative, please go to

<txar.org/intervention/rti.htm>
and
<txar.org/intervention/rti_resources.htm>.

Note: For a more complete understanding of the three-tier model of instruction for mathematics, it is highly recommended that educators complete the MSTAR Academy Professional Development Series. This professional development series is available through online courses via Project Share. The course catalog overview is available at *<projectsharetexas.org/>*. Please contact your ESC for details.

- **MSTAR INTV: Facts & Patterns: Mult. & Div.**
  <www.epsilen.com/crs/1012499>
- **MSTAR INTV: Equivalent Fractions**
  <www.epsilen.com/crs/1011427>
- **MSTAR INTV: Proportionality**
  <www.epsilen.com/crs/1116059>
- **MSTAR INTV: Ratios and Rates**
  <www.epsilen.com/crs/1012676>
- **Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST)**
  <www.paemst.org>

• 2011 Texas Secondary Mathematics Finalists – were honored by State Board of Education in January 2012
  - o Cynthia Knowles, Pre-AP Geometry teacher at Eisenhower Senior High School in Aldine ISD
  - o Dixie Ross, AP Calculus teacher at Pflugerville High School in Pflugerville ISD
  - o Jill Stevens, high school mathematics teacher at Trinity High School in Hurst-Euless-Bedford ISD

Dixie Ross was selected as the 2011 PAEMST awardee for grades 7-12 mathematics teachers.

- **TEA Mathematics Webpage**
  <www.tea.state.tx.us/index2.aspx?id=3449>
- **Project Share**
  <www.projectsharetexas.org/>
- **TXAR Webpage**
  <txar.org>
- **ITunes University**
  <www.tea.state.tx.us/itunesu>
- **Contact Information**

TEA Division of Curriculum – Main Phone Number (512) 463-9581

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Student Assessment Division • *Texas Education Agency*

Voices from the Classroom

My Favorite Free Apps for Mathematical Learning

Having recently purchased an iPad for my work with teachers, I have been exploring free math apps. Apple boasts over 500,000 apps for iPhone, iPod Touch, and iPad. More are being added each day, not to mention apps available for other mobile technologies. This abundance makes it difficult to identify rich and engaging apps which also support mathematical topics appropriate for young students.

A quick search on the iTunes store website for "iPad math apps" yielded 49 apps, the majority requiring a fee. However I keep discovering wonderful mathematically-related free apps that don't seem to be classified as "math" in the search. I am most interested in app games and activities that support mathematical learning and understanding rather than those that serve primarily as practice drills, tutorials or calculation services. Searching for apps using "statistics" or "geometry" has been fruitful but not discriminating. Searches for specific content topics such as "angle" or "prime number" seemed to yield better results but took a lot of time and effort to sort through. There are also many apps for traditional logic games that are mathematical in nature, such as Rush Hour and Tower of Hanoi. The problem is that they come with many different names, making them hard to find using a word search. For example, the Rush Hour game can also be found listed as Blockus, Gridlocked, Unjam, Wriggle, Parking Car, SuperGarage, and Traffic Jam.

Below are twelve of my favorite free apps for mathematical topics across grade levels. I believe these apps are rich enough to support learning with understanding and engaging enough to motivate time and effort spent to develop logical reasoning. I have included the platforms and suggested grade levels as well as the mathematical topics for each app. A few of the free apps have a full version for a small price that has more levels of difficulty or additional desirable characteristics. However, I suggest you try the "lite" version before buying the full version app.

These apps can be used to introduce a new mathematical topic, use as a formative assessment for learning, as a center for practice, for tutoring one-on-one, or as enrichment at home. Let the families of your students know that there are educational apps for mathematics that are more than just drill or lookups. Interactive technologies like iPads can be linked to the projector in your classroom or used with your interactive whiteboard. The possibilities are limitless, put on your thinking cap and see how you can use apps in your classroom!

Glow Burst Lite	Grades 4-9
iPhone iPad	**Ordering integers**: Review of integers or practice identifying magnitude of integers
Burst glow bubbles in correct numerical order before time runs out. An error deducts time, every round completed gives you bonus time. The game starts with whole numbers but suddenly includes negative numbers! This free version has one level of difficulty and no pause button. Glow Burst is a full version with three levels for $0.99.	

Panasonic Prime Smash	Grades 6-12
iPad	**Prime numbers & factors:** Quickly identify prime numbers and split composite numbers into factors which may be prime or composite
Bubbles with numbers burst onto the screen -- if the number is prime, tap it! If it is not prime, swipe across it to split it into two factors. Tap if the factors are prime or swipe again. Three levels of difficulty, sound, scoreboard, and excellent visual instructions. A Fun Facts page simply explains prime and not-prime numbers; a Collection page groups twin primes and palindromes.	

Glow Puzzle	Grades 5-12
iPhone iPod Touch iPad	**Geometry:** Learn vocabulary (vertex, vertices, edge, Euler path); use strategy and logical reasoning to solve.
Glow puzzle with vertices and edges; connect all the dots in the puzzle using all the edges without repeating an edge (an Euler path). If a puzzle is traced correctly, you may move up a level. If you fail to trace correctly, you may restart the puzzle or change levels. Solutions are demonstrated if you wish. The game includes 25 free puzzles; an additional 235 puzzles can be purchased.	

MathTappers: Estimate Fractions	Grades 5-12
iPhone iPod Touch iPad	**Fractions**: Estimate fraction magnitude; fraction addition & subtraction; use to build fluency or in a fraction lesson.
Estimate fractions on the number line by dragging the fraction card to the nearest benchmark. If correct, the fraction card disappears; if incorrect, the fraction card returns showing the fraction area in a circle for reclassification. Includes sound, estimating magnitude of fractions, sums or differences, with three levels of difficulty and a range of 0-1 or 0-2. Your accuracy score and time are posted on a progress page. A page for parents and educators includes "Building fluency" and "Using this app in the classroom".	

Slice It! Begins	Grades 3-12
iPhone iPod Touch iPad	**Geometry**: Identify geometrical figures & vocabulary; estimate equivalent areas; eye-hand coordination; logical reasoning; seeking alternate or multiple solutions.
Slice a geometric shape into equal pieces using your finger. Shapes get progressively complex with more slicing lines; there is often more than one way to do it correctly. Scores use up to five gold stars and rates your equal sections by percentage of area. The game comes in several languages, with sound and a leaderboard. Earn gold stars for a higher level, free hints, and finding a Gift Box gets you a bonus stage!	

Number Find Lite	Grades 1-5
iPad	**Number:** Use number patterns and place value to strategically locate the given number; try to find it in the minimal number of touches.
Find the given number hiding on a 100s chart. Click where you think it might be and then correct your guess using number structure and patterns. Complete a set of ten numbers to get your high score! Sometimes the 100s chart rotates or reverses, so watch for clues! Number Find is the full version for $2.99.	

Show of Hands	Grades 6-12
iPhone iPod Touch iPad	**Statistics:** Vote in the poll as a class, then discuss the graph results and their implications for students and their families.
You can answer new poll questions weekly and then view a map chart and pie charts of results by state, political party, age and income. Some questions are for more mature audiences and many are political. You can even suggest your own poll questions!	

Burn Your Brain: Math	Grades 5-12
iPhone iPod Touch iPad	**Number:** Estimate outcomes of number operations; build fluency and judgment. Can be used as a formative assessment for individual students.
Quickly decide if the given sum, difference, product or quotient is true or false and tap your answer. Gives cumulating score and high score. One level only and navigation is non-existent, you have to restart the app to start another game.	

Number Line	Grades 5-12
iPhone	**Rational numbers:** Practice ordering a mix of fractions, decimals and percentages on a number line. Discuss rational number representations and their equivalences.
Place a selection of fractions, decimals, and percentages in order on a number line. If you place a number in the wrong order it turns red and you can drag it to the right place. Awkward navigation; says there are four levels but can only seem to access "easy".	

Five-O-Lite	Grades 6-12
iPad	**Multiples:** Learn fluency with multiples of five and quick sums; encourage strategy, logical reasoning and seeking multiples solutions.
This is Scrabble with numbers instead of letters. Play against the computer; choose digit tiles to total a multiple of five; strategically place it on the board, trying to land on double or triple score spaces to maximize your score. The full version Five-O can be played with up to four players for $3.99.	

Pop Math Lite	Grades 1-4
iPhone iPod Touch iPad	**Addition:** Practice fluency with addition of single digit numbers; mental math.
Bubbles float with addition problems and their associated sums. Tap on the problem and solution in pairs to pop the bubbles. You are scored on time and levels completed. The full version PopMath has all four binary operations with multiple digit numbers for $0.99.	

Kakooma	Grades 6-12
iPhone iPod Touch iPad	**Addition:** Develop logical reasoning and practice mental math with addition.
Similar to Sudoku, find the one number that is the sum of two others in the nine-square. That number replaces the nine-square to be used later in the super puzzle. Racing the clock will yield scores and put you on the leaderboard!	

Elaine Young • <elaine.young@tamucc.edu>
Associate Professor of Mathematics • Texas A&M University-Corpus Christi

Recommended Readings and Resources

Teach Like a Champion
by Doug Lemov

ISBN: 978-0-470-55047-2
Publisher: Jossey Bass

Teach Like a Champion is essential reading for those who intend to make every moment count in their classrooms, who want to build a collection of skills that will help them guide their students to meaningful achievements, and who are about getting down to the work of ensuring that the future of our students is not just dependent on where they come from.

Lots of teachers get lofty words of advice on how to improve their teaching performance. But come Monday morning with class about to begin – the question is "How do I do that?" Lemov offers specific, concrete, actionable techniques that you can start to use tomorrow – such as, when wanting students to pay attention to your directions, STAND STILL. If you're walking around handing out papers, it looks like the directions are no more important than all of the other things you're doing. By the way, for a good technique on passing out papers – watch clip #13 on the "See It in Action" DVD that accompanies the book.

Reading and applying some of the techniques suggested in Teach Like a Champion will bring you one step closer to becoming a champion in your classroom if you are not already there!

Mary Alice Hatchett • <mahat@earthlink.net>
Independent K-12 Mathematics Consultant • Georgetown, TX

TCTM Leader Spotlight

Each year since 1995, TCTM has accepted nominations for two awards for leaders in our professional community. The TCTM Leadership Award is presented to a TCTM member who is nominated by a TCTM affiliate. The second award, the E. Glenadine Gibb Achievement Award, is presented to someone nominated by a TCTM member. The following individuals have been honored and we wish to acknowledge their former and ongoing contributions this year in the leader spotlight. **If you wish to nominate someone for 2013, please download the forms from our website. Please submit your nomination by Dec. 31, 2012.**

Our prior awardees are:

Year	Leadership(local/state)	Gibb (state/national)
1995	Mary Alice Hatchett	Iris Carl
1996	Betty Forte	Cathy Seeley
1997	Diane McGowan	Pam Chandler
1998	----	----
1999	Linda Shaub	Eva Gates
2000	Lloy Lizcano	Bill Hopkins
2001	Susan Hull	Pam Alexander
2002	Janie Schielack	Judy Kelley
2003	Bonnie McNemar	Dinah Chancellor
2004	Dixie Ross	Jacqueline Weilmuenster
2005	Barbara "Basia" Hall	Barrie Madison
2006	Nancy Trapp	Lois Gordon Moseley
2007	Kathy Hale	Cynthia L. Schneider
2008	Jim Wohlgeheagen	Juanita Copley
2009	Jane Silvey	Jo Ann Wheeler
2010	Elaine Young	Paula Steffen Moeller
2011	Beverly Burg Anderson	Jennie M. Bennett

Scavenger Hunt

In this issue you need to find and read the twelve hidden QR codes hidden throughout this issue. If you do not have a QR reader, an Internet search will list several free apps! Submit a list of the hidden sayings via email to Mary Alice Hatchett by October 1, 2012 at <mahat@earthlink.net>. All correct entries will be entered into a drawing for a $100 NCTM gift certificate. The winner will be notified by November 1, 2012.

Congratulations to Michelle Rinehart from Rankin ISD! Michelle won a $100 NCTM gift certificate in the drawing from the correct responses on the Fall 2011 Texas Mathematics Teacher Geometry Scavenger Hunt.

Fall 2011 Winner
Michelle Rinehart

Applications

2013-14 Mathematics Preservice Teacher Scholarship

There are ten $2000 scholarships available for 2013-14. Any student attending a Texas college or university - public or private - and who plans on student teaching during the 2013-14 school year in order to pursue teacher certification at the elementary, middle or secondary level with a specialization or teaching field in mathematics is eligible to apply. A GPA of 3.0 overall and 3.25 in all courses that apply to the degree (or certification) is required. Look for the scholarship application online at *<www.tctmonline.org>*. The application deadline is May 1, 2013. Winners will be announced in July 2013.

NCTM Membership

What's an easy way to support TCTM?

Join NCTM or renew your NCTM membership!

Sign up for your NCTM membership and use the link on the web form to indicate TCTM as the affiliate you wish to receive a rebate! Go to *<www.nctm.org>*.

TCTM will receive $5.00 if you are joining NCTM as a new member, and $3.00 if you are renewing. In the past, the state affiliate only received the rebate if the NCTM membership flowed through the state treasurer. Now you can sign up directly with NCTM and give back to your state affiliate. However, you may only choose one state affiliate for the rebate (it will not be split).

Please remember, you cannot join your local affiliates from the NCTM website. You must join the local affiliates directly by the process they have established. You may join TCTM by either attending the CAMT conference as a paid participant, or by using our membership form found online at *<www.tctmonline.org>*.

New TCTM Grant Coming

The TCTM Board is revamping the way we fund opportunities for Texas teachers. Please check online at *<www.tctmonline.org>* for the new guidelines and application procedures.

TCTM Communications

Follow TCTM on Twitter!

Did you know that we now have an official Twitter account? Find out the latest about TCTM and other information just for Texas mathematics teachers!

twitter.com/TCTM_Updates

Follow TCTM on Facebook!

Like the Texas Council of Teachers of Mathematics page on Facebook.

Snail Mail!

The journal is sent to the address you indicated on your membership form or the address that was used when you registered for CAMT. Please update your mailing address if it is not correct. If you have an e-mail address, please be sure it is on file and up-to-date with TCTM. If you do not have an e-mail address, please let us know. You may update your information with the membership chair Martha Godwin at *<mgodwin@qcisd.net>* .

Learning to See What Matters:

Noticing Students' Mathematical Thinking

James met me at lunch to play a math game. He'd much rather get a shot at beating his school's math specialist than stand in the long lunch line. Before we started playing, he informed me, "I've figured out a strategy. I'm going to win today."

"We'll see," I replied as I pulled out the game board, focused my video recorder on it, and gave James a handful of plastic squares. The board showed the most common products from 1 to 81 in seven rows and columns. Here's an example of one row of the table:

15	**16**	**18**	**20**	**21**	**22**	**24**

The point of the game was to be the first to cover four numbers in a row, which required an understanding of common factors and multiples.

It wasn't hard for me to guess what James was thinking as he used his first two turns to cover numbers 16 and 20. I could have covered 18 to thwart his plan, but I was ready and eager to lose this game in order to see his mathematical thinking in action and record it on video.

Sure enough, James paired factors 6 and 3, and placed his plastic square on 18, crowing, "I've won already. See – I've covered 16, 18 and 20. It's your turn and you can block me at 15 or 21, but not both."

From that comment, I was fairly sure that James was fluent in his multiplication facts, and he appeared to recognize common factors with ease. He also appeared to be thinking and communicating in a way that a problem-filled worksheet might not bring forth. He was seeing and using math concepts in action. And the chance to feel smarter than me made the game interesting to him, and therefore worth doing. It also made my job easier.

Since James was engaged in work that required him to strategize about possible moves a few steps ahead, he was thinking at a much higher level than many worksheets would require. This was an excellent opportunity to engage in formative assessment and record it. In addition, I noticed the mathematics in what James was thinking because I've learned to see what matters.

In Contrast to James – Andrew

A few days after my game with James, I sat down with Andrew who was struggling in math class. As we played the same game and recorded it, I noticed that Andrew was focused on choosing products from the factors with which he was comfortable. He would count on his fingers, trying to remember a sequence of multiples as he looked for a play on the board. So what did this game tell me about Andrew's knowledge of factors and multiples? Mainly that he appeared unable to efficiently recall basic multiplication facts; of course, that stood in the way of his ability to see common factors and multiples, something that would really do him a disservice as he moved into fractions in their various forms. If Andrew weren't in the habit of noticing the different ways she could get to 24, for instance, it would be quite difficult for himer to find common denominators or even to simplify fractions.

Given the testing-related pressures placed on students and teachers these days, it's tempting to plow on through the curriculum and find ways for students like Andrew to find the answers, even if they don't understand the concepts. After all, we want students to be successful in school; passing a test feels good. But deep down, we also know that a quick fix might patch a small hole in Andrew's understanding, while leaving an even bigger hole in his ability to successfully understand more advanced mathematics. This means we owe it to Andrew, and to all the teachers he'll have after us, to find ways to address Andrew's lack of fluency and perhaps knowledge, while continuing to teach the students whose understandings are more like James's. It doesn't do

[1] Video recording of students is dependent on local district and campus policies. Be sure to check with your local district before video recording students.

any good to notice a student's thinking if we're not going to take action.

But how do we learn to notice in the first place? Noticing is something that all teachers do, but to varying degrees. Like any aspect of teaching, there are levels of sophistication that are reached through practice, learning, and insight from teachers' best practices.

Viewing Students' Mathematical Thinking on Videos

Using video as a means to capture students at work, teachers are able to reflect on their own practice and get feedback from their peers as well (Sherin, Jacobs & Philipp, 2011). In fact, the increasingly inexpensive video recorders available mean that educators like me are using video for professional development purposes more and more frequently.

Video can be used to capture a few minutes of effective instruction for sharing with the grade level team, to record one-on-one assessments for teacher training purposes, and to give students another way to publish their work. When it comes to noticing a student's mathematical thinking, a video clip that can be replayed again and again is an invaluable resource for teacher learning. That is why I was so eager to capture James's words on video and to record the game with Andrew.

Capturing video evidence of students' mathematical thinking is a way to spark conversation and more effective instructional planning with colleagues (Richardson, 1990). Because many teachers already use interviews to assess students' reading ability and number concept development, teachers are accustomed to having one-on-one conversations to determine what students know and understand; however, those interviews only cover some of the areas for which student learning needs to be tracked.

Furthermore, many teachers rely on assessment guides to tell them what to do instructionally when given a certain student response. While this is generally helpful and may relieve the guesswork in responding to students' needs, it could lead to teachers that don't necessarily have to deeply understand the mathematical ideas that students are developing. In order to bring our teaching practice to that level of understanding, we need to notice what matters and understand students' mathematical thinking in depth and teach accordingly.

As we build a library of videos, the following guidelines need to stay in the forefront of our minds: assessments must authentically replicate the mathematics in which students are engaged in the classroom and the real world; students in the videos must represent the continuum of student understanding that exists in our classrooms (like James and Andrew); and the use of video clips must be integrated into team planning meetings so that time is made to learn from them.

As a math specialist, I use the videos to inform teaching and learning in classrooms across the school. It has taken me years to learn to see what students like James and Andrea are thinking in the moment when we sit and play a game, but video allows me to think more carefully about their responses and strategies. It is my hope that this video project will decrease the learning curve for teams, so everyone can learn to see what matters.

REFERENCES

Richardson, K. (1990). *A look at children's thinking [Video I & II]*. (Available from Education Enrichment, Inc., P. 0. Box 1524, Norman, OK 73070).

Sherin, M., Jacobs, V. & Philipp, R. (Eds.) (2011). *Mathematics Teacher Noticing*. New York: Routledge.

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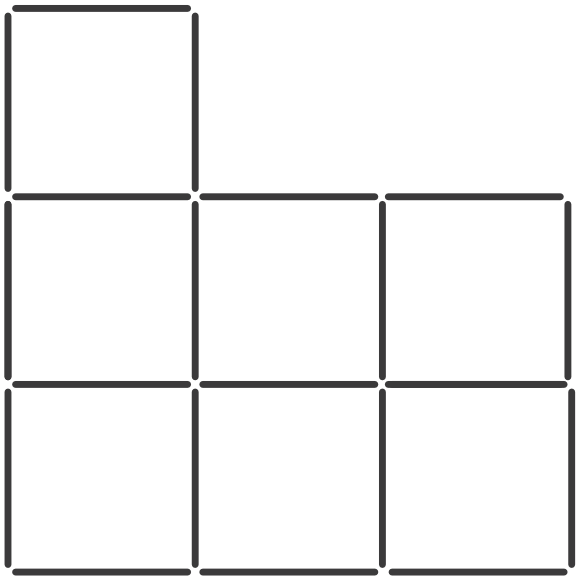
Puzzle Corner

We are interested in how your students responded to this problem and how they explained or justified their reasoning. Please e-mail copies of your students' work, include your name, grade level, campus name and district name to Mary Alice Hatchett, Director of Publications, *Texas Mathematics Teacher*. Selected submissions will be acknowledged and published in subsequent issues.

Sticks #18 Puzzle

Arrange 20 craft sticks to form the following figure.

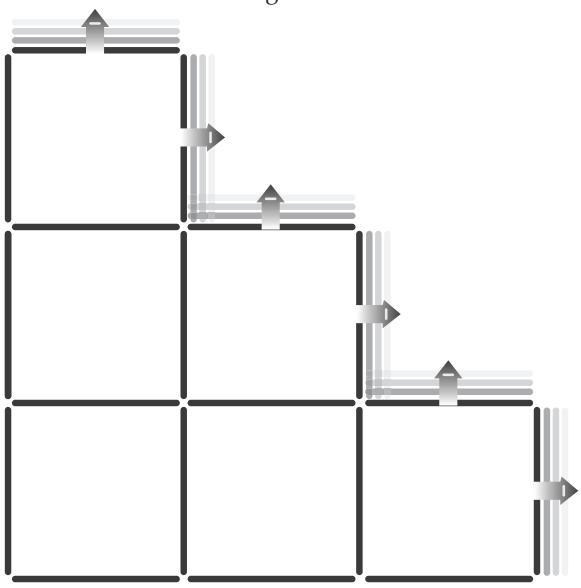


Rearrange three sticks to form a figure that has five congruent squares.

Sticks #17 Answer

Arrange 18 craft sticks to form the original figure. Remove six sticks to leave three congruent squares.

Shown is a diagram of **a solution.**



Quotes for Thought

"I walk slowly, but I never walk backward."

Abraham Lincoln
16th U.S. President
(1809 – 1865)

"If everyone is thinking alike, then somebody isn't thinking."

George S. Patton Jr.
WWII general
(1885 – 1945)

"A goal without a plan is just a wish."

Antoine de Saint Exupery
French writer and aviator
(1900 – 1944)

Find the Mathematics… in a pasture

The two Hereford cows in this picture are pets. The full white face cow is named 'Valentine' since she was a Valentine present and the other is her heifer calf born on Memorial Day named 'Glory'. Today 'Glory' is full grown and weighs as much as her mother Valentine! They live on a 7 acre pasture and eat the grass when available and otherwise are fed round bales of hay.

The Hereford breed has an interesting background. They were developed about 2 ½ centuries ago in Herefordshire, England. The first Herefords were introduced to America by Henry Clay in 1817, when he brought a cow, a heifer, and a young bull to his Kentucky farm. In 1876 some of the first Herefords to arrive in Texas were brought in by the Ikard brothers of Henrietta, Texas. They purchased ten animals at the Philadelphia Centennial Exposition, shipped them by rail to Denison, and then trailed them to Henrietta. Later Charles Goodnight of the J A Ranch introduced 60 registered Hereford bulls into the Panhandle between 1883 and 1884. Around 1900 Robert J. Kleberg started breeding Herefords on the King Ranch in South Texas. The Texas Hereford Association originated in San Antonio during the International Livestock Exposition in 1899. By 2012 the number of Hereford breeders in Texas has grown to about 600.

Classroom questions for consideration:

1. How old is the Hereford breed?
   (*2 ½ centuries or 250 years)*
2. In what year was the Hereford developed?
   (*2012 – 250 = 1762)*
3. How many years after the Hereford was introduced to America did the Hereford arrive in Texas?
   (*1876-1817= 59 years)*
4. The Ikard brothers trailed their 10 Herefords from Denison to Henrietta, Texas. Where could you find out the distance those cattle walked?
   (a little over 100 miles)
5. If the Ikard trail took 15 days, how far did they travel per day?
   (6-7 days)
6. When breeders are looking for 'show' stock, they consider many different body conditions such as the ratio between body parts. The ratio of the distance between Glory's horn tips and the length of her face is about 6:7. If her face is 21 inches long, how far apart are her horns?
   (about 18 inches)
7. The length of Glory's back is about 3 and half times the length of her face. How many inches long is her back? How many feet long is her back?
   (back is about 73 inches or about 6 feet)
8. The area of 1 acre is 43,560 square feet. There are an infinite number of different shapes and dimensions an acre could have. What would the dimensions of the acre be if it is in the shape of a square?
   (*208.71 feet on a side (approx.))*
9. Can you complete a table like this for a rectangular shaped acre?

Width (in feet)	Length (in feet)
9	
10	
12	
20	
24	
40	
60	
72	
120	
121	
180	

Width (in feet)	Length (in feet) solution
9	4840
10	4356
12	3630
20	2178
24	1815
40	1089
60	726
72	605
120	363
121	360
180	242

10. If a 1 acre pasture were in the shape of a circle what would be the approximate measure of the diameter in feet.
    (235.5 feet)
11. Valentine and Glory graze in a 7-acre pasture. How many square feet in 7 acres?
    (304,920 square feet)
12. A Hereford bull weighs between 2000 and 2800 pounds. A Hereford cow like Valentine weighs about 55% of a bull. To the nearest 100 pounds Valentine weighs between ____ and ____ pounds.
    (1100 and 1500)
13. A Hereford cow eats about 2% of their body weight daily. About how many pounds of food do both of these cows consume in an average month?
    (between 1300 and 1800 pounds)

Additional resources:
Mathematics Teaching In Middle School May 2011

Lesson Study on the Farm - Abstract
Stacking bales of hay in a barn provides the context for a team of teachers to develop a rich lesson involving geometric solids

Illuminations:
<illuminations.nctm.org/LessonDetail.aspx?id=L783>

Hay Bale Farmer
In this lesson, students will use dimensions of round and square hay bales to calculate and compare volumes. They also calculate unit prices to determine which hay bale is the better value. Finally, students explore how to fit round and square bales into a barn to maximize volume, and decide which type of hale bale is the best choice.

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Announcements

Apply now for a MET Grant, Scholarship, or Award!

NCTM's Mathematics Education Trust (MET) channels the generosity of contributors through the creation and funding of grants, awards, honors, and other projects that support the improvement of mathematics teaching and learning.

MET provides funds to support classroom teachers in the areas of improving classroom practices and increasing mathematical knowledge. MET also sponsors activities for prospective teachers and NCTM Affiliates, as well as recognizing the lifetime achievement of leaders of mathematics education. Grant, scholarship, and award funding ranges from $1,200 to $24,000 and can be used for conferences, workshops, seminars; research and in-service training in mathematics coursework; or professional development activities. MET is currently accepting applications for its winter cycle of grants and scholarships for current and future math teachers. The deadline is November 9.

If you are a teacher, prospective teacher, or school administrator and would like more information about MET grants, scholarships, and awards, please visit our website, www.nctm.org/met or e-mail us at exec@nctm.org.

We look forward to hearing from you!

MathCounts (middle school)

The MATHCOUNTS Club Program *<mathcounts.org>* was introduced in 2007 and is a free program aimed at engaging a wide spectrum of students. The MATHCOUNTS Club Program provides schools with the structure and activities to hold regular meetings of a math club.

Math and Stats by Email

Looking for some new math problems? Brain teasers? Do you want to feel connected to the world-wide community of mathematics educators? Here's a great listserv you can join. You will receive emails every two weeks from CSIRO. Partners that support this resource are the Australian Bureau of Statistics and the Australian Mathematical Sciences Institute. To sign up for this email search for Math and Stats by Email or go to

<www.csiro.au/helix/mathsbyemail/activity/FAQ.html>.

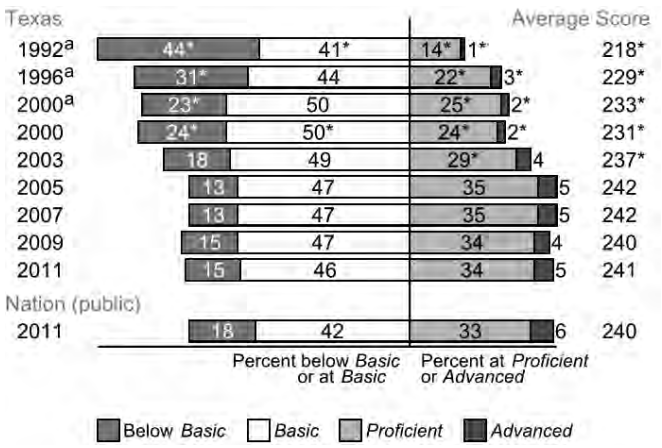
I promise you and your students will enjoy the mathematical challenges they share.

Cynthia L. Schneider, Ph.D. • <cschneider@austin.utexas.edu>
Research Associate • Charles A. Dana Center,
The University of Texas at Austin

From the National Assessment of Educational Progress - the Nation's Report Card - Mathematics - 2011 State Snapshot Report for Texas

Texas Grade 4 Public Schools

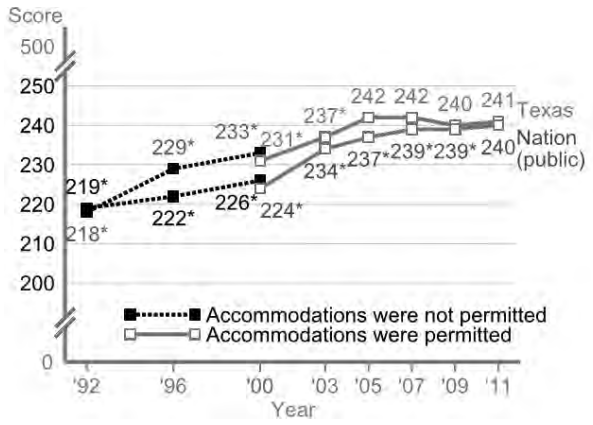
Achievement-Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2011. Significance tests were performed using unrounded numbers.
[a] Accommodations not permitted. For information about NAEP accommodations, see http://nces.ed.gov/nationsreportcard/about/inclusion.asp.

NOTE: Detail may not sum to totals because of rounding.

Average Scores for State/Jurisdiction and Nation (public)

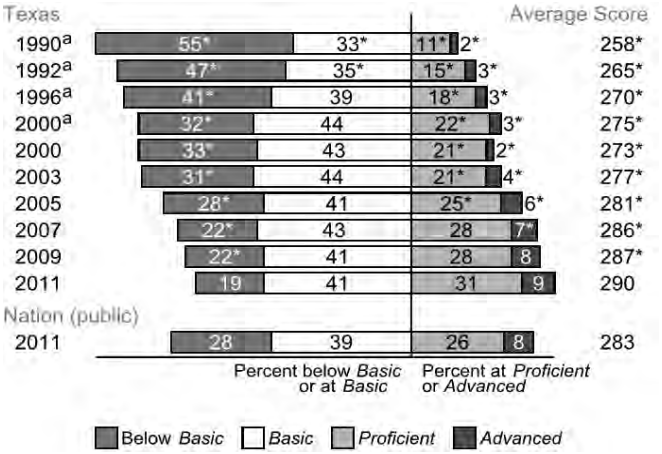


* Significantly different ($p < .05$) from 2011. Significance tests were performed using unrounded numbers.

NOTE: For information about NAEP accommodations, see http://nces.ed.gov/nationsreportcard/about/inclusion.asp.

Texas Grade 8 Public Schools

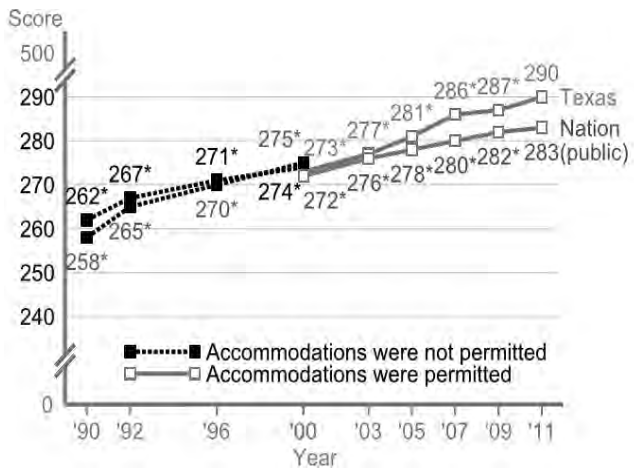
Achievement-Level Percentages and Average Score Results



* Significantly different ($p < .05$) from state's results in 2011. Significance tests were performed using unrounded numbers.
[a] Accommodations not permitted. For information about NAEP accommodations, see http://nces.ed.gov/nationsreportcard/about/inclusion.asp.

NOTE: Detail may not sum to totals because of rounding.

Average Scores for State/Jurisdiction and Nation (public)



Significantly different ($p < .05$) from 2011. Significance tests were performed using unrounded numbers.

NOTE: For information about NAEP accommodations, see http://nces.ed.gov/nationsreportcard/about/inclusion.asp.

NOTE: Statistical comparisons are calculated on the basis of unrounded scale scores or percentages.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), various years, 1992–2011 Mathematics Assessments.

Medians, Modes, and Making Decisions

If you asked students to find the mean, median, and mode of the set {1, 1, 1, 1, 1, 1, 1, 2, 2, 2, 2, 3, 4, 4, 5, 5, 6, 6, 6, 6}, they will probably give the answers 3, 2, and 1 (respectively) without much effort. We have found that students' knowledge of these measures of center may begin and end with a computational formula. In response, we designed a game to help students notice and use some special properties of the mode and median to make decisions.

We purchased blank icosahedral dice and wrote numbers on each of the 20 faces with a permanent marker, as shown in Figure 1. Each icosahedron had seven 1s, four 2s, one 3, two 4s, two 5s, and four 6s.

Figure 1: Blank and Specially Marked Icosahedral Dice

Playing the Game

The game works like this: each student selects a number (1, 2, 3, 4, 5, or 6) that will be called their prediction and used to determine their score. The students then rolls the die 18 times, and calculates her or his score for the round. We use a couple of different scoring methods, which we describe below. Our game is a bit like golf, in that 18 rolls are made, and lower scores are desirable. Therefore, students attempt to predict the number that will minimize their overall score based on the scoring methods described next.

Method 1: Miss Scores

The first method we use is the "miss" score, which counts the number of outcomes that did not match the prediction. With this method, the student's goal is to predict the outcome that will yield the most matches (and fewest misses) with outcomes of the 18 rolls of the die.

After a round of 18 rolls, students are eager to find out who had the lowest miss score. In addition to congratulating the winner, this is also a good place to ask for predictions that would results in a low score under each of the two scoring methods. Here are some comments we've heard in our classes:

- It doesn't matter what you predict, any number from 1 to 6 could happen.
- 4 is a good prediction because I got six of them when I rolled my die 18 times.
- 1 is a good prediction because there are more 1s on the die.

Method 2: Distance Scores

The second scoring method is the "distance" score, which is the absolute value of the difference between the prediction and outcome. For example, if the prediction was 3, the outcomes of 1 and 5 are both worth 2 points, and an outcome of 3 yields 0 points.

Students' initial thoughts on the best prediction for a low distance score are mixed. Some students claimed that a 1 was still a good prediction, because it appeared more than any other number. Others disagreed, stating something like, "You shouldn't pick a 1 or 6 because you could possibly score 5 points. If you predict a number in the middle, like 3 or 4, you are guaranteed 3 points or less on each roll." These conjectures generated considerable discussion, and students were eager to know if there is a "best" prediction, what it might be, and if it is the same for both scoring methods.

Analyzing the Game

At this point, we tell students we will analyze the game under the two scoring methods, and that this is different than playing the game. Each student looks back at his or her record of 18 outcomes and asks, "What single prediction would have given me the lowest score?" To illustrate, we provide an example in Table 1.

Table 1: A Set of Outcomes of 18 Rolls of the Die

Outcome	1	2	3	4	5	6
Frequency	5	2	1	6	1	3

To determine the prediction that would yield the lowest miss score, we find the outcome (our outcomes) that occurred most often. Regarding the data in Table 1, predicting 4 each time would result in the lowest miss score: 12 of the 18 rolls were not 4, so that would give a score of 12 points. By way of contrast, predicting 1 each time would yield a miss score of 13; predicting 3 each time would yield a miss score of 17.

Students report which prediction (or predictions, in the case of a tie) would have yielded the least points, and we record the lowest-scoring predictions on the board. Pooling data for the class enables students to acknowledge the variability of the "best" predictions. For illustrative purposes, a possible classroom set of lowest-scoring predictions, from a class of 25 students, is given in Table 2.

Table 2: Lowest Miss Scores from 25 Students

Prediction with Lowest Miss Score	1	2	3	4	5	6
Number of Students	17	4	0	1	0	5

The prediction deemed to be "the best" is the one that yielded the most points for the most students. From this data, we see that 1 is the "best" prediction for a low miss score, because the greatest number of students found it to be the prediction that yielded the least number of points. When asked to use statistical language, students stated that the mode of the values on the board determined the "best" score for this scoring method. The reader may note that the numbers in the second row have a sum of 27, and not 25. That is because two students had ties for the lowest-scoring prediction.

We now had students use their data to determine the distance scores that would have been obtained using different predictions. As an example with the outcomes from Table 1, a prediction of 1 would result in 5(0) + 2(1) + 1(2) + 6(3) + 1(4) + 3(5) = 41 points. If the prediction was 2, the score would be 5(1) + 2(0) + 1(1) + 6(2) + 1(3) + 3(4) = 33 points. If the prediction was 3, the score would be 5(2) + 2(1) + 1(0) + 6(1) + 1(2) + 3(3) = 29. Based on the example, the complete set of potential scores is shown in Table 3. It appears that, in this particular case, predicting 4 would have yielded the lowest score.

Table 3: Example Analysis of Distance Scores

Prediction	1	2	3	4	5	6
Distance Score	41	33	29	27	37	49

Again, we determine the "best" prediction for obtaining a low distance score by finding the mode of the predictions that gave each student the lowest score. A possible classroom set of predictions, from a class of 25 students, is shown in Table 4. This table shows that 2 is the "best" prediction for a low distance score, because the greatest number of students found it to be the prediction that yielded the least number of points. In this class, several students found multiple predictions tied for the lowest-scoring spot.

Table 4: Lowest Distance Scores from 25 Students

Prediction with Lowest Distance Score	1	2	3	4	5	6
Number of Students	2	20	9	6	0	0

Explanations

From the pooling of results, students easily see that the "best" prediction depends on the scoring method. One student noted, "1 is the best prediction if you want to get the lowest miss score because there are more 1s on the die than any other outcome." When asked to use statistical language, students claimed that the mode of the values in the sample space is the best prediction when minimizing miss scores.

Students' initial conceptions that a good prediction for a low distance score is a number "in the middle" is correct – but we need to indicate what the whole is when we look for the middle. Each time we have used this lesson, at least one student notices that 2 is the middle number in the sample space when the numbers are listed in order. One student claimed, "We want the median of the sample space, which isn't the median of

the six different possible numbers." In other words, the median of this set yields the "best" prediction for distance scoring (Holt & Scariano 2009).

Modifications

Instead of making your own dice, this game can be played with 20 slips of paper, or using a simulated die (see Figure 2) such as <www.shsu.edu/~dlj006/myggb/d20load.html>. You could also vary the numbers on the die or the point values used in scoring. We used this particular set of 20 integers because the mean, median, and mode are all integers that are different from each other.

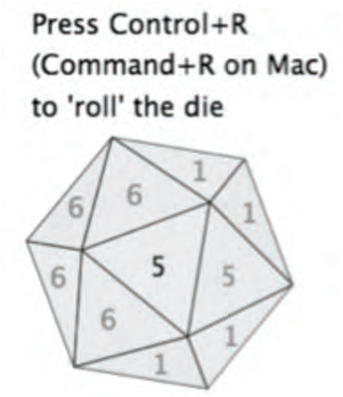


Figure 2: Simulating the Die with GeoGebra

For a fun surprise, we recommend a third scoring method using the squares of the distance scores. Once you've tried it, you'll see what we mean.

REFERENCE

Holt, Melinda Miller, and Stephen M. Scariano. "Mean, Median and Mode from a Decision Perspective." *Journal of Statistics Education* 17 (November 2009).

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Student Activity: Random Number Sentences

Find as many true number sentences as you can. Number sentences can be horizontal or vertical.

6	7	5	8	4	4	5	6	6	9
5	4	9	0	4	3	9	7	2	4
3	3	8	8	0	3	2	8	4	2
0	4	0	1	5	4	9	0	4	3
3	5	9	9	3	3	8	2	7	5
3	7	8	9	5	2	1	9	4	3
5	6	2	3	6	5	4	3	7	6
9	1	1	1	2	4	3	7	0	9
4	0	3	0	0	9	6	7	5	0
2	4	5	2	5	9	6	3	4	6

EXAMPLES:

(vertical) 5 x 3 = 6 + 9 (last column, starting on the 5th row)

(horizontal) 9 = 3 • 3 (found in 5th row, starting with column 4)
4 + 0 + 3 + 0 = 0 • 96 + 7 (found in row 9, starting with column 1)

To create your own, please go to our website <*tctmonline.org/ TMT_archive.html*> and download an excel worksheet. Make your own by using Excel and filling in each blank with a random number function such as "=RANDBETWEEN(0,9)" or "=INT(RAND()*10)".

About This Publication

Since 1971, the Texas Council of Teachers of Mathematics (TCTM) has produced the journal *Texas Mathematics Teacher* for our members. Our mission is to promote mathematics education in Texas. In the journal we accomplish this by publishing peer-reviewed articles by leading authors, state updates from the Texas Education Agency, and local news from around the state. TCTM is committed to improving mathematics instruction at all levels. We place an emphasis on classroom activities that are aligned to the Texas Essential Knowledge and Skills and the NCTM *Principles and Standards for School Mathematics.*

The *Texas Mathematics Teacher* seeks articles on issues of interest to mathematics educators, especially K-12 classroom teachers in Texas. All readers are encouraged to contribute articles and opinions for any section of the journal. Teachers are encouraged to submit articles for Voices From the Classroom, including inspirational stories, exemplary lessons, or management tools. More specific guidelines for submissions may be found below.

In 2004-05, our publication took on a new look. Original artwork on the cover is another appealing change for our readers. We publish the journal twice each school year, in the fall and spring semesters. Next year, we plan to provide our publication in a web-based format as well as print. You will be given the option to decide if you wish to continue to receive the print version or not. Our current website archives the more recent journals in PDF format. Please see

<www.tctmonline.net>

if you wish to view prior issues.

Our current Editorial Board consists of Cynthia Schneider, Mary Alice Hatchett, Geoffrey Potter, Larry Lesser and James Epperson. Larry and James serve as expert advisors; Cynthia is the editor. Mary Alice does many jobs, including requesting articles, serving as an elementary expert, and communicating with authors. Geoff is the layout and graphic designer; he manages to fit all the text into the limited number of pages we have to work with. The TCTM Board wishes to thank them for their leadership in improving the *Texas Mathematics Teacher*.

Advertising Guidelines for Texas Mathematics Teacher

All advertising is subject to the approval of the publisher. The journal staff shall be responsible for ascertaining the acceptability of advertisements. All advertisements should be sent "copy-ready" by the closing dates of September 1 for the fall issue and January 15 for the spring issue. Position preference, such as right-hand pages or first half of issue will be honored on a first-come basis. All advertisements must be pre-paid by the closing date with a check made payable to TCTM, and mailed to our current treasurer, Martha Godwin. Rates for *Texas Mathematics Teacher* per issue are: full page $500.00, half page $300.00, quarter page $200.00.

All advertisers must adhere to the guidelines posted on our website at *<www.tctmonline.org>*.

Editorial Board

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This journal is funded by the Texas Council of Teachers of Mathematics and printed at The University of Texas at Austin, which does not imply endorsement by the University or by the Charles A. Dana Center.

Call For Articles

Texas Mathematics Teacher seeks articles on issues of interest to mathematics educators, especially K-12 classroom teachers in Texas. All readers are encouraged to contribute articles and opinions for any section of the journal.

Manuscripts, including tables and figures, should be typed in Microsoft Word and submitted electronically as an e-mail attachment to the editor with a copy to the director. No author identification should appear on or in the manuscript. A cover letter containing author's name, address, affiliations, phone, e-mail address, and the article's intended audience should be included. After refereeing, authors will be notified of a publication decision.

Teachers are encouraged to submit articles for ***Voices From the Classroom,*** including inspirational stories, exemplary lessons, or management tools. If submitting a lesson, it should include identification of the appropriate grade level and any prerequisites.

Items for ***Lone Star News*** include, but are not limited to, NCTM affiliated group announcements, advertisements of upcoming professional meetings, and member updates.

Businesses interested in placing an **advertisement** for mathematics materials should contact Mary Alice Hatchett. Advertisements do not imply endorsement by TCTM's board, editorial staff or members.

Deadline for submissions: Fall, July 1 Spring, January 15

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TCTM 2011-12 Mission, Focus and Goal Statements

Mission of the Texas Council of Teachers of Mathematics:

To promote mathematics education in Texas

To support this mission, TCTM has five **focus areas:**

Recruit and Retain Mathematics Teachers	Curriculum and Instruction Support	Advocacy	Promote Communication among Teachers	Serve as Partner Affiliate for NCTM

TCTM activities will align to the five strategic goals. **Goals** of the organization include six strands:

Administration

- Streamline online membership registration through CAMT

Publications

- Survey membership to identify what they want in the *Texas Mathematics Teacher* (*TMT*)
- Review and refine the *TMT* journal and the TCTM website
- Improve the review protocol, establish criteria for reviewers
- Provide tips for new teachers in the *TMT* and on the website

Service

- Increase the donations toward Mathematics Specialist College Scholarships
- Staff CAMT with volunteers as necessary
- Advertise affiliated group conferences on the TCTM website, in the *TMT* and at CAMT

Communication

- Maintain an e-mail list of members for timely announcements
- Communicate with affiliated groups in a timely manner

Membership

- Encourage affiliated groups to include TCTM registration on their membership forms

Public Relations

- Sponsor and staff the TCTM booth at CAMT
- Follow NCTM Advocacy Toolkit (2004) for increased voice of TCTM membership on issues relevant to our mission

TCTM Past-Presidents

1970-1972	James E. Carson	1984-1986	Ralph Cain	1998-2000	Pam Alexander
1972-1974	Shirley Ray	1986-1988	Maggie Dement	2000-2002	Kathy Mittag
1974-1976	W. A. Ashworth, Jr.	1988-1990	Otto Bielss	2002-2006	Cynthia L. Schneider
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1980-1982	Patsy Johnson	1994-1996	Diane McGowan		
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Mark your calendar for these important dates!

18th Annual Panhandle Area Mathematics and Science Conference	West Texas A & M University, Amarillo, TX	***September 29, 2012***
NCTM Regional	Dallas, TX	***October 10-12, 2012***
Austin Area CTM	Dobie Middle School, Austin, TX	***October 27, 2012***
Rio Grande CTM	University of Texas – Pan American, Edinburg, TX	***November 17, 2012***
Central Texas CTM	ESC 12, Waco, TX	***February, 2013***
NCTM 2013 Annual Meeting & Exposition	Denver, CO	***April 17-20, 2013***
CAMT 2013	Henry B. Gonzales Convention Center, San Antonio, TX	***July 10-12, 2013***