Find the Mathematics...

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Vote Online!
Elect your 2011 officers
*see page 26 for online
voting instructions*

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Texas Council of Teachers of Mathematics
Executive Board 2010 - 2011

Texas Mathematics Teacher

A PUBLICATION OF THE TEXAS COUNCIL OF TEACHERS OF MATHEMATICS

Volume LVIII Issue 1   **Spring 2011**

Cover Photo by Crag Hatchett

Articles

Features

Departments

TCTM Applications

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

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 1

Letter from the President

Dear TCTM Members,

Spring semester already – time goes by so quickly. Spring always finds Texas math teachers thinking about state assessments. This will be the last year for TAKS™ testing in grades 3-9. The TAKS™ will be phased out in grades 9-11 over the next few years. STAAR™ will begin in the spring of 2012.

Below you will find a few of the changes that STAAR™ will bring.

The New STAAR™ Performance Labels will be

- Level III: Advanced Academic Performance
- Level II: Satisfactory Academic Performance
- Level I: Unsatisfactory Academic Performance

Here are the definitions for each performance level, as written by TEA[1]:

Level III: Advanced Academic Performance *

Performance in this category indicates that students are well prepared for the next grade or course. They demonstrate the ability to think critically and apply the assessed knowledge and skills in varied contexts, both familiar and unfamiliar. Students in this category have a high likelihood of success in the next grade or course with little or no academic intervention.

* For Algebra II and English III, this level of performance also indicates students' postsecondary readiness.

Level II: Satisfactory Academic Performance

Performance in this category indicates that students are sufficiently prepared for the next grade or course. They generally demonstrate the ability to think critically and apply the assessed knowledge and skills in familiar contexts. Students in this category have a reasonable likelihood of success in the next grade or course but may need short-term, targeted academic intervention.

Level I: Unsatisfactory Academic Performance

Performance in this category indicates that students are inadequately prepared for the next grade or course. They do not demonstrate a sufficient understanding of the assessed knowledge and skills. Students in this category are unlikely to succeed in the next grade or course without significant, ongoing academic intervention.

For the STAAR™Alternate assessments, the performance labels are

- Level III: Accomplished Academic Performance
- Level II: Satisfactory Academic Performance
- Level I: Unsatisfactory Academic Performance

New Griddable Items

The STAAR™ will bring new grids for griddable items. There will be 3 to 5 griddable items on the assessments.

New Way to Assess Process Skills

Process skills will be incorporated into test questions and reported along with content skills under the content reporting category

For more information about STAAR™ visit:

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

The Start of Something Big is the theme of CAMT 2011. CAMT 2011 will be held at the Gaylord Texan (*<www.gaylordhotels.com/gaylord-texan>*), 1501 Gaylord Trail, Grapevine, Texas on July 18-20, 2011. The location is a beautiful resort; the program will offer many wonderful sessions. Finally, the Exhibit Hall will feature vendors with useful products for your classroom.

The Keynote Session this year will feature Dan Meyer. Dan Meyer is a math teacher who knows the frustrations and joys of teaching. The Keynote Session will be a lively, visual session featuring three models for modern curriculum development – the three-act story, the forty-pound problem, and the exploded view – recipes for the kind of math curriculum that is fun to teach and fun to learn. There will be a follow-up session Tuesday afternoon.

To register for CAMT go to *<www.camtonline.org>*. The deadline for early registration is May 1, 2011. The conference registration fee is $95 if registered by May 1 and $135 if registered after May 1. The keynote session has an additional fee of $35.

If you would like to volunteer at CAMT 2011, please contact the Volunteer Chair, Martha Godwin at *<mgodwin@qcisd>*. net. I look forward to seeing you there.

As the TCTM Board tries to fulfill the TCTM mission – to promote mathematics education in Texas - I ask you to join us on this journey. Feel free to offer comments/concerns/suggestions to me at *<ntrapp@vtxb.com>*.

Nancy Trapp
TCTM President 2010-2012

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[1] These descriptors may be found on the PDF document entitled Performance Labels and Policy Definitions for the State of Texas Assessments of Academic Readiness (STAARTM) accessible at this website: *<www.tea.state.tx.us/student.assessment/staar/>*

Lone Star News

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.

SOUTHWEST REGION: *Service Centers 15, 18, 19*
Rita Tellez and Veronica Hernandez, Co-Regional Directors

Greater El Paso CTM

Annual fall conference CONNECTIONS: LINKING CONCEPTS AND CONTEXT was held on October 23, 2010. For future event information and registration please contact: GEPCTM President, Glen Torguson at *<gtorgu@sisd.net>* or Membership VP, Craig Rhoads at *<crhoad@sisd.net>*

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>*.

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

Texas South Plains CTM
Seventeenth Annual Panhandle Area Mathematics and Science Conference will be held on September 24th, 2011, in Canyon, TX. Contact: Treasure Brasher, *<tbrasher@mail.wtamu.edu>*

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

East Texas CTM
If you are interested in helping re-start this organization, please contact Martha Godwin at *<mgodwin@qcisd.net>*.

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@cistercian.org>* .

SOUTH TEXAS REGION: *Service Centers 1, 2, 3*
Barba Patton, Regional Director

Coastal CTM
Will hold their annual conference on Friday, June 17, 2011, in Corpus Christi. 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 46th annual conference will be held on Saturday, November 19, 2011, at the University of Texas - Pan American, Edinburg, Texas, from 8:00 a.m. to 4:00 p.m. Contact: Nancy Trapp *<ntrapp@vtxb.com>* or see *<www.rgvctm.org>*.

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

Austin Area CTM
The spring meeting is scheduled for Tuesday May 3, 2011, at Martin Middle School in Austin ISD beginning at 5:00 p.m. Contact AACTM President Pam Johnson, *<pjohnso2@austinisd.org>*, or AACTM Treasurer Kelly Meshell, *<kmeshell@austinisd.org>* for registration.

Alamo District CTM
South San Antonio ISD hosted an 'Academic Arama' on November 6, 2011, for ADCTM. Contact : Evelyn Trinidad (210) 977-7365.

Central Texas CTM
CTCTM held a spring mini-conference on February 19, 2011, in Waco at the Region 12 Service Center. Contact: Rachelle Meyer *<Rachelle_Meyer@baylor.edu>* or see *<www.baylor.edu/soe/ctctm>*.

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)
will hold their annual meeting at CAMT 2011. For more information contact the current president Colleen Eddy at *<leadership@amte-tx.org>*.

NATIONAL

National Council of Teachers of Mathematics (NCTM)
Annual Meeting and Exposition will be held in Indianapolis, IN on April 13-16, 2011.

TEA Talks

Assessment Updates

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

- 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 Conference, February 2011 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

◎ Mathematics Graduation Requirements

For information on the graduation requirements, including a side-by-side chart outlining the requirements, please see the State Graduation Requirements webpage at

<www.tea.state.tx.us/graduation.aspx>.

◎ Advanced Quantitative Reasoning

The State Board of Education (SBOE) approved Advanced Quantitative Reasoning (AQR), a new mathematics course, for second reading and final adoption on January 21, 2011. This new mathematics course can satisfy the fourth mathematics credit graduation requirement and may be offered beginning in the 2011-2012 school year. It is anticipated that the PEIMS code for this course will be created this spring and will be available in the March version of the PEIMS code table. The Texas Essential Knowledge and Skills (TEKS) are posted as adopted at

<www.tea.state.tx.us/index4.aspx?id=2206>.

◎ Texas Algebra Readiness Initiative Key Components

1. Focused Curriculum

Texas Response to Curriculum Focal Points (TxRCFP) (K-8)

The TxRCFP organizes the Texas Essential Knowledge and Skills (TEKS) around key conceptual ideas that emphasize integration of concepts across the strands/skills and lead naturally to mathematical connections and higher-level thinking. The TxRCFP is available on the TEA Mathematics Curriculum website and at *<www.txar.org>.*

2. Algebra Readiness Professional Development Academies

Continued Professional Development Offerings:

MSTAR: An Introduction (5-8)

The MSTAR Introduction informs and familiarizes participants with the TxRCFP as a framework for improving overall mathematics instruction and achievement with the goal of decreasing the percentage of students who need math intervention. An online version of this training, MSTAR Introduction: An Executive Summary, is now available on Project Share, *<projectsharetexas.org>.*

Elementary Students in Texas Algebra Ready (ESTAR): An Introduction (K-5)

The ESTAR Introduction informs and familiarizes participants with the TxRCFP as a framework for improving overall mathematics instruction and achievement with the goal of decreasing the percentage of students who need math intervention. ESTAR is available through the Texas Regional Collaboratives.

MSTAR: Geometric Approach to Algebra Readiness (6-8)

The MSTAR: Geometric Approach to Algebra Readiness Academy provides content-based professional development focusing on geometric approaches to algebra. The Geometric Approach to Algebra Readiness Academy also focuses on addressing the needs of all learners through Response to Intervention (RtI) strategies that focus on integrating the TEKS and creating quality Tier 1 lessons. The MSTAR: Geometric Approach to Algebra Readiness Academy is available through the Texas Regional Collaboratives.

MSTAR Academy 1 for Grades 5-6 and Grades 7-8

The goal of the MSTAR Academy I for Grades 5–6 and Grades 7-8 is to improve overall mathematics instruction and student achievement in order to meet EOC Algebra I standards in grade 9/high school and to ensure postsecondary readiness. Participants examine the "big ideas" in the grades 5–8 math TEKS and learn strategies to prepare students for success in algebra. Participants explore hands-on, student-centered lessons designed to provide connections to and strengthen participants' knowledge of the middle-school mathematics that is critical for success in algebra, the College and Career Readiness Standards (CCRS), English Language Proficiency Standards (ELPS), and RtI. The MSTAR Academies provide intensive content-based professional development focusing on the how and what to teach to engage students in concepts and content. Unfacilitated online versions of MSTAR Academy I are now available on Project Share. Facilitated online versions will be available this spring.

Algebra I End of Course Success (EOCS)

The Algebra I EOCS training has a goal of improving overall mathematics instruction and achievement in order to ensure student success on the Algebra End of Course Exam. This training allows participants to examine the concepts in the Algebra I TEKS and learn strategies through the exploration of hands-on, student-centered lessons designed to provide connections to and strengthen participants' knowledge of College and Career Readiness Standards (CCRS), English Language Proficiency Standards (ELPS), and Response to Intervention (RtI). Sessions provide Texas teachers and administrators with online resources and follow-up activities through an online interactive platform, as well as allow educators to build online professional learning communities for further development and growth.

New professional development offerings available summer 2011:

MSTAR Academy 1 Part B Completion

The MSTAR Academy I Part B Completion training will engage participants in the use of data-driven decision-making within the MSTAR Lesson Study model to plan, review, and refine Tier I mathematics instruction. Participants will review important sources of data on student knowledge and thinking related to algebra readiness; connect each of these sources of student data to its appropriate types of decisions; and design a data-driven action plan for improving some aspect of algebra-readiness related instruction during the next year.

MSTAR Academy II

The MSTAR Academy II training emphasizes research-based Tier II strategies from the IES Practice Guide for Struggling Students and engages participants in how to identify students needing Tier II support in mathematics and meet their instructional needs. Participants will learn how to interpret results of the MSTAR Universal Screener; use the screener results and other forms of data to make instructional decisions; and provide practical strategies for implementing evidence-based interventions for students receiving Tier II mathematics support.

Algebra II EOCS

The Algebra II EOCS training has a goal of improving overall mathematics instruction and achievement in order to ensure student success on the Algebra II End of Course Exam. The training will allow participants to examine the concepts in the Algebra II TEKS and learn strategies through the exploration of hands-on, student-centered lessons designed to provide connections to and strengthen participants' knowledge of College and Career Readiness Standards (CCRS), English Language Proficiency Standards (ELPS), and Response to Intervention (RtI). Sessions will provide Texas teachers and administrators with online resources and follow-up activities through an online interactive platform, as well as allow educators to build online professional learning communities for further development and growth.

Geometry EOCS

The Geometry EOCS training has a goal of improving overall mathematics instruction and achievement in order to ensure student success on the Geometry End of Course Exam. The training will allow participants to examine the concepts in the Geometry TEKS and learn strategies through the exploration of hands-on, student-centered lessons designed to provide connections to and strengthen participants' knowledge of College and Career Readiness Standards (CCRS), English Language Proficiency Standards (ELPS), and Response to Intervention (RtI). Sessions will provide Texas teachers and administrators with online resources and follow-up activities through an online interactive platform, as well as allow educators to build online professional learning communities for further development and growth.

3. **Grants to districts**

Algebra Readiness Grants focus on improving student achievement in the area of algebra readiness. Grantees will design, develop and implement a comprehensive school improvement model for mathematics. For more information please see

<www.tea.state.tx.us/index3.aspx?id=8274&menu_id3=814>.

4. **Technology Based Supplemental Math Instruction Pilot (5-8)**

The Technology Based Supplemental Math Instruction Pilot focuses on students who are not on track to meet the end-of course standards by providing technology-based supplementary instruction in mathematics.

5. **MSTAR Universal Screener (5-8)**

The MSTAR Universal Screener is a formative assessment system administered to students in grades 5-8 to support instructional decisions. The content of the MSTAR Universal Screener is based on algebra-readiness skills as identified in the Texas Response to the Curriculum Focal Points. Results can help teachers identify students who might not be ready for algebra and are in need of additional instructional support. Teachers will be able to monitor students' risk status by administering comparable forms of the MSTAR Universal Screener in fall, winter, and early spring. Administrations dates will be sent out on the mathematics listserv and will be posted on TMSDS.

The MSTAR Universal Screener can be accessed through the Texas Math and Science Diagnostic System (TMSDS). Teachers, students, and administrators can use their 2010-2011 TMSDS usernames and passwords to access the MSTAR Universal Screener. To find out how to upload students into TMSDS, visit www.tmsds.org or contact the TMSDS representative at your educational service center (ESC). You may contact mstarscreener@tea.state.tx.us if you have any questions.

Online training focusing on interpreting the MSTAR Universal Screener reports and making instructional decisions based on the data is available on Project Share. The online course is entitled "MSTAR Universal Screener Overview."

Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST)

The 2010 PAEMST awards recognized outstanding grade K – 6 mathematics and science teachers whose innovative methods bring teaching to life in the classroom. In 2011, the PAEMST program will recognize outstanding mathematics teachers in grades 7 – 12.

The Texas finalists in elementary mathematics are Elizabeth Hudgins of Eanes ISD, Lorene Wallace of Austin ISD, and Stephanie Weaver of Pearland ISD. Hudgins is a 5th grade teacher at Eanes Elementary School in Eanes ISD and has 8 years of teaching experience. Wallace is a 1st grade teacher at Bryker Woods Elementary School in Austin ISD and has 6 years of teaching experience. Weaver is a 3rd grade teacher at Shadycrest Elementary School in Pearland ISD and has 14 years of teaching experience.

Currently, outstanding certified mathematics and science teachers in grades 7 – 12, with five years or more of K – 12 teaching experience, are eligible to apply. If you would like to nominate an outstanding mathematics or science teacher, nomination forms and applications are available at: <www.paemst.org>. Nominations are due by April 1, 2011, and applications are due by May 2, 2011.

Texas Math and Science Diagnostic System (TMSDS)

The Texas Mathematics and Science Diagnostic System (TMSDS) is managed by CORE K12, a division of CORE ECS. TMSDS is provided at no cost to Texas school districts and charter schools. TMSDS is a web-based TEKS-aligned diagnostic assessment system that covers grades 3 – 8 in mathematics and science as well as Algebra I, Geometry, Algebra II, Integrated Physics and Chemistry, Biology, Chemistry, and Physics. Instructions for enrolling in TMSDS can be found at <www.tmsds.org>. Please contact your regional education service center for training opportunities and technical assistance.

Texas Education on iTunes U

Governor Rick Perry and the Texas Education Agency have joined together to launch Texas Education on iTunes U, which provides free multimedia content to educators, students and parents in Texas and around the world.

If you are a student, teacher, school district, higher education institution, professional organization, or a non-profit organization, TEA invites you to consider becoming a content provider for Texas Education on iTunes U. If selected as a content provider, your organization's current audio, video and PDF resources will be hosted on the Texas Education on iTunes U site in addition to any current website locations that can be linked in iTunes U.

For more information, please visit *<www.tea.state.tx.us/itunesu/>*.

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Director of Mathematics • *Texas Education Agency*

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Student Assessment Division • *Texas Education Agency*

TCTM Recognition Reception at CAMT 2011

Tuesday, July 19, 2011, 5:00 p.m. - 7:00 p.m.
Exhibit Hall B at the Gaylord Texan

TCTM members are invited to the annual TCTM business meeting and reception on Tuesday, July 19 at Exhibit Hall B. This meeting and reception is open to ALL paid registrants attending CAMT 2011 and dues-paying members of TCTM. No pre-registration or additional fee is required. During our brief business meeting, we will share information with members about recent actions of the national, state, and local councils.

Award recipients and state and local board members will be recognized. Door prizes will be awarded. We regret that children or other guests cannot be accommodated.

Voices from the Classroom

Inspiring Enthusiasm Through Problem Solving

"I don't get it." Mary whispered. I could see her frustration etched in her brows. "Me neither." Ten other 7-year-old voices chimed. I inwardly groaned. Where were the smiling faces I saw in the videos? Where were the hands shooting up eagerly to share their strategies? This was nothing like the picture Mary Alice Hatchett had painted in the Cognitively Guided Instruction (CGI) course. Where was the enthusiasm? In that moment I realized how much of the work I had been doing for them when we would problem solve.

> At the fair, there are **36** children in line to ride the roller coaster. The roller coaster has **10** cars. Each car holds 4 children. How many children can sit **3** to a car, and how many children have to sit **4** to a car?

This happened on the first day I was taking a CGI approach to problem solving with my students. I had put the roller-coaster problem on the board (see the problem shown above). We read it as a class a couple of times and then I told the students to go solve it. Ten minutes later, I looked up and saw that more than half of the class looked like they were about to cry, a quarter had given up, and the rest of the students that were attempting to complete it had their mini-offices up so that nobody could peak at what they were doing. This was not what I was expecting. But I was determined to not give up on CGI so quickly and to not give them step-by-step directions on how to solve it. We re-read the problem as a class and then I told them not to give up, and to share ideas to come up with solutions. Again, after 10 minutes, I could see the despair in their faces.

Just as I was about to give up, I looked over to two of my higher students, Lily and Daniel. They were talking about the problem and actually solving it! Quickly, I called the rest of the students over to their table. "Lily would you like to share how you are solving the problem with the rest of the class?" Lily cautiously nodded her head. As she started to explain what she was doing, I could see a good majority of the kids starting to understand it. Before long, many of the kids were inching away from the table, ready to solve it themselves. As I gave them permission to sit back at their desks, I gave one quick comment: "Boys and girls, I loved how Lily and Daniel are talking about the problem!"

Five minutes later, the classroom had completely changed. All of the mini-offices had been taken down and the kids where sharing their ideas with the rest of their table. I walked around the different tables, talking with them to see what solutions they were coming up with. Each time a table would solve the problem in a different way, I would have the whole class stop and listen to that table's method. If a student came up to ask me a question, I would either read them the whole problem again or send them off with a student that was doing the problem successfully. Ten minutes before we ended the lesson, Mary came over and said, "I get it now Ms. Ramos!" with a smile lighting her face. I looked around the room and everybody had smiles, too.

We have been applying the CGI method for three months now, and math in the classroom has been revolutionized. Now the Problem of the Day is our central focus. We have applied the CGI method to every type of addition, subtraction, multiplication and division problems, with students figuring out the solution on their own. The moment we finish reading and discussing the problem, the students go and pick out their own manipulatives. Five minutes into the process, I see everybody's heads bent over the table, and there are different conversations going on around the room to come up with the best way to solve the problem.

I have found that the CGI method allows students to break away from their dependency on the teacher to do the thinking for them. When this happens, their light bulbs turn on and suddenly, you find yourself trying to keep up with the pace they are setting. They now have the confidence to come up with their own solutions and strategies, instead of needing me to teach it to them explicitly; their self-confidence has grown tremendously and their enthusiasm and thinking has taken root. They look forward to the math problems and to sharing their strategies. They see the Problem of the Day as a challenge they can overcome together, not as a tedious chore they don't understand. I have taken myself out of the driver's seat and the kids have taken ownership for their own learning!

Amrit Ramos ● <pulguita984@yahoo.com>
Teacher ● Langford Elementary

Fibonacci = Numbers + Patterns

I have used the picture book *Math Curse* (Scieszka, 1995) as an introduction to my math class since teaching fourth grade over 10 years ago. I still use it today for in-service and pre-service teachers as a way for them to feel comfortable and be able to relate to mathematics. The story by Jon Scieszka (rhymes with Fresca, lucky for him 'cause not much else does) tells the story of a child in Mrs. Fibonacci's math class who begins to think of everything as a math problem. His conclusion is that Mrs. Fibonacci must have put a "math curse" on him. Luckily for him, the problem resolves itself at the end of the story. The book has many math concepts that may be beyond the knowledge of the students, but the humorous story and the great illustrations by Lane Smith make it well worth reading to students of all ages.

I wanted my students to know something about the mathematician Fibonacci, for whom the teacher is named. After reading the entire book to the class, I started by rereading the section in the book where Mrs. Fibonacci counts: 1, 1, 2, 3, 5, 8, 13… This would lead to a pair and share activity where I would ask my students to look for the pattern and figure out the next 3 numbers in the sequence. They would see the pattern that the following number is formed by adding the two previous numbers: $1+1 = 2$, $1+2 = 3$, $2+3 = 5$, $3+5 = 8$, $5+8 = 13$. The next three numbers would be 21, 34, and 55. The pattern can continue forever!

As a follow up activity, I also integrated an art project into the class requiring large art paper and rulers. I would use the Fibonacci and Nature web site:

<www.maths.surrey.ac.uk/hosted-sites/ R.Knott/Fibonacci/fibnat.html>.

The web site has an animated image of how to draw a diagram using the Fibonacci sequence. The students will see that drawing squares with the sides of the growing Fibonacci numbers and connecting them with a curved line will form the shell spiral.

You can imagine my pleasure when a school librarian told me about the new book *Blockhead: The Life of*

Fibonacci (D'Agnese, 2010) which is a historical fiction set in Pisa, Italy during the Middle Ages. Leonardo Fibonacci was nicknamed "Blockhead" because he was always daydreaming about number patterns. A lesson plan for using the book can be found at my Mathematics through Children's Literature web site:

<faculty.tamucc.edu/fbruun>.
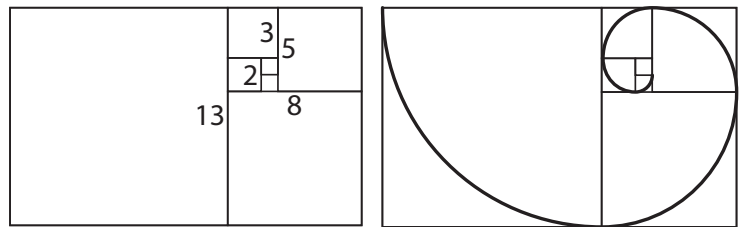
Many important topics are covered in *Blockhead: The Life of Fibonacci*, one of which is how Fibonacci brought the Hindu-Arabic number system to Europe. Fibonacci's father took him to northern Africa where he learned the number system from merchants. Europeans continued to use Roman Numerals not trusting using a different system even though Fibonacci wrote a book about the numerals originating from the Hindu people of India. It was the invention of the printing press in 1450 A.D. that led to using Hindu-Arabic numbers because they were so much easier to print. This topic can lead to a lesson on our Base 10 place value system and how it can be compared to the additive system of Roman Numerals.

The Number Devil: A Mathematical Adventure (Enzensberger, 1997) is full of antics of famous mathematicians, including Fibonacci. The main character is a boy much like the main character in Math Curse who does not like mathematics until a Number Devil visits him in his dreams each evening. On the Sixth Night, the Number Devil introduces a rabbit clock and reproducing rabbits in a pattern to form "Bonacci" numbers. Fibonacci literally means "son of Bonaccio." Except for the title of the book which may make parents uncomfortable, the German author writes a delightful story that is not devilish or evil but very clever.

Fibonacci numbers are also found in nature. A book with beautiful photographs which illustrated this is *Growing Patterns: Fibonacci Numbers in Nature* (Campbell, 2010). Starting with a photograph of a seed, and continuing with photographs of petals of flowers, the book shows how the Fibonacci sequence is found in the spirals of pine cones, the center of sunflowers, the outside of pineapples, and nautilus shells.

Some or all of these books can be used to engage your students' interest in mathematics and learn something about a famous mathematician who saw number patterns in the world around him. Isn't that what math really is: Patterns!

References

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Fibonacci Numbers and Nature. http://www.maths.surrey.ac.uk/hosted-sites/R.Knott/Fibonacci/fibnat.html

Scieszka, J. (1995) *Math curse*. New York: Penguin.

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CAMT Board Update

TCTM, as one of the sponsoring organizations, is represented on the CAMT Board of Directors by Cynthia Schneider, Nancy Trapp, and Paul Gray. Paul also serves as the President of the CAMT Board of Directors. We are all pleased to share with you some exciting news from the CAMT Board's recent January meeting!

CAMT is moving into the 21st century. Beginning with CAMT 2011 in Grapevine, we will no longer provide overhead projectors for speakers to use in the conference rooms. Instead, we will use digital projectors and document cameras. The CAMT Board made this decision since most classrooms have moved beyond overhead projectors to the use of document cameras, and we want to make sure that teachers have access to lessons and activities that showcase efficient use of this technology. (Well, that, and it is becoming increasingly difficult to rent overhead projectors from the conference audio/visual technology companies!) If you are a speaker, and you want to use a laptop computer, it is still BYOL (Bring Your Own Laptop). But throw those old transparencies away and bring an extra set of print handouts for use with the spiffy new document cameras! Document cameras are also great for manipulatives. You only need a few extra student manipulatives instead of a special set of overhead manipulatives to model what you want the session attendees to see and do.

In addition, the CAMT Board is looking to expand the Technology Strand within the conference. We will have rooms featuring Internet-based lessons, as well as rooms with interactive whiteboard lessons. If you have these technologies and are interested in learning more about them, don't miss these exciting presentations.

You can now find CAMT on Facebook and Twitter! CAMT has its own group in Facebook, and we invite you to join the group so that you can be kept current with the latest in conference news. You can follow CAMT on Twitter by subscribing to camttweets. Catch the latest in updates on CAMT and even live action reports from the conference!

Other CAMT Board news and events include some exciting details about CAMT 2011 in Grapevine, Texas, and a few hints for CAMT 2012 in Houston, Texas. CAMT 2011 Program Chairs Teresa Dodson and Karen Sealy, both of Prosper ISD, have been working fast and furious to secure a who's-who list of featured speakers, many of whom are new to CAMT. Details about these exciting speakers can be found on the CAMT website, www.camtonline.org, or in the registration booklet. We are also pleased to announce that Ramona Davis, of Cypress-Fairbanks ISD, has agreed to serve as the Program Chair for CAMT 2012 in Houston! Mark your calendars now for July 18-20, 2012, at the George R. Brown Convention Center in Houston.

Some of the best ideas for future CAMT sessions and activities come from CAMT attendees and classroom teachers like you! If you have ideas, suggestions, or requests, please don't hesitate to send those to CAMT Board President Paul Gray at *<pgray73@sbcglobal.net>*. If you have specific questions about CAMT 2011, including registration or program inquiries, please contact Anita Hopkins, CAMT Executive Director, at *<camt@camtonline.org>*.

Paul Gray, Ed.D. ● *<pgray73@sbcglobal.net>*
TCTM Past-President ● *Houston, TX*

CAMT 2011 Overview

CAMT 2011: The Start of Something Big
Gaylord Texan

July 18 – 20, 2011
Grapevine, TX

CAMT 2011 is ideal for school districts who want their teachers to learn to be effective in the classroom, knowledgeable about content, and able to make mathematics exciting and understandable for students. CAMT 2011: The Start of Something Big has invited great national/state featured speakers for this year's conference.

CAMT 2011 will be held July 18- 20, 2011, at the Gaylord Texan in Grapevine, Texas. The Program Chairs are Teresa Dodson and Karen Sealy of Prosper ISD. Complete program information is available online in PDF format as of May 1, 2011 at: <*www.camtonline.org*>.

Design of Conference Schedule

	Secondary Audience	Elementary Audience
AM	Larger sessions in featured location with national speakers	Smaller sessions led by colleagues sharing particular topical expertise
PM	Smaller sessions led by colleagues sharing particular topical expertise	Larger sessions in featured location with national speakers

CAMT 2011 Volunteers

Dear Members of TCTM,
Volunteer to be a VOLUNTEER!

We believe that there is an opportunity for everyone to find their niche in helping CAMT to be a success for everyone involved – here's how you can join in on the efforts (we would love to have over 250 volunteers ready to go!). We are looking for fellow mathematics educators to assist us with supporting participants in areas such as the following: Registration, Exhibits, Speaker Check-In, or Transportation. Come work "behind the scenes." We need you! Please e-mail, telephone or fax your name and contact information (be sure to include contact information for the summer) to Martha Godwin, along with which of the following dates you are available to volunteer. Martha will respond via e-mail or home phone with a specific scheduled time and location.

Thank you for making every CAMT a wonderful experience!

Volunteer Information

I am willing to volunteer on July	17th PM	18th AM	18th PM	19th AM	19th PM	20th AM	20th PM

Name: _____ Last _____ First _____ Middle

Address: _____ Number and street _____ Apt. number

_____ City _____ State _____ Zip Code

Contact: (   ) _____ Home Phone   (   ) _____ Cell Phone   _____ Email Address

Affiliation: _____ District or Professional Affiliation _____ ESC

Please submit your form to Martha Godwin,

by mail: **Martha Godwin**
P.O. Box 82
Queen City, TX 75572

by email:
< mgodwin@qcisd.net >

CAMT Featured Speakers
Monday, July 18

Rooms at the Gaylord Texan

Legend: General = G Elementary = E Secondary = S

Room	Time	Speaker	Level	Title
Grapevine A	8:00 am	Dixie Ross	S	Effective Questioning/Assessment Tools
Grapevine A	10:00 am	Dixie Ross	S	Teaching AP Calculus TODAY!
Grapevine A	12:00 pm	Sam Zigrossi	G	The Emerging Responsibilities for Mathematics
Grapevine A	1:00 pm	Mary Alice Hatchett	E	Great Fun! Huge Learning! Grades PreK-2
Grapevine A	3:00 pm	David Molina	G	STAAR: Focus on Academic Readiness: Are You Ready?
Grapevine B	8:00 am	Don Balka	S	Games & Activities in Algebra & Prealgebra
Grapevine B	10:00 am	Tom Butts	S	Some of My Favrite Math Questions,
Grapevine B	1:00 pm	Margarita Calderon	G	How to Teach Vocabulary to ELS
Grapevine B	2:00 pm	Jeane Joyner	E	Assessment to INFORM Teaching and Learning
Grapevine B	3:00 pm	Jeane Joyner	E	Good Questions Lead to INFORMative
Grapevine C	8:00 am	Pamela Harris	S	Fractions Like You Have Never Seen Them
Grapevine C	9:00 am	Pamela Harris	S	Fractions Like You Have Never Seen Them
Grapevine C	10:00 am	Robyn Silbey	G	The Math Coach: Create a Vision for Success
Grapevine C	1:00 pm	Everly Broadway	E	TEA Mathematics Update—Elementary
Grapevine C	2:00 pm	Amy Axelrod	E	The Pigs Will Be Pigs Series
Grapevine C	3:00 pm	Amy Axelrod	E	The Pigs Will Be Pigs Series
Grapevine D	8:00 am	Amy Germundson	S	Beyond Numbers: Reaching Diverse Learners
Grapevine D	10:00 am	Amy Germundson	S	Beyond Numbers: Reaching Diverse Learners in Secondary Mathematics
Grapevine D	12:00 pm	JoAnn Wheeler	G	STAAR Gazing with Rigor
Grapevine D	1:00 pm	JoAnn Wheeler	G	STAAR Gazing with Rigor
Grapevine D	2:00 pm	Barbara Novelli	E	Seven Big Steps to Nurture Young Mathematicians
Grapevine D	3:00 pm	Jennifer Taylor-Cox	E	Math Intervention: Building Number Power
Texas A	8:00 am	Marcia Tate	S	Worksheets Don't Grow Dendrites: Twenty Instructional Strategies that Engage the Brain
Texas A	1:00 pm	Marcia Tate	S	Worksheets Don't Grow Dendrites: Twenty Instructional Strategies that Engage the Brain
Texas B	10:00 am	Everly Broadway	S	TEA Mathematics Update—Secondary
Texas B	1:00 pm	Marcy Cook	S	Centers for Math—Management, Materials
Texas B	2:00 pm	Greg Tang	E	Math Learning Centers
Texas B	3:00 pm	Greg Tang	E	Math Learning Centers
Texas B	4:00 pm	Greg Tang	E	Math Learning Centers
Texas C	8:00 am	Larry Lesser	S	Worksheets Don't Grow Dendrites
Texas C	9:00 am	Sam Zigrossi	G	Are You Ready to Leap Into the 21st Century?
Texas C	11:00 am	Zal Usiskin	G	Forty-Eight Years of International Comparisons:
Texas C	1:00 pm	Kim Sutton	E	Drill Like A Champion!
Texas C	3:00 pm	Juanita Copley	E	Beyond Cute: Appropriate and Intentional Mathematics for the Young Child
Texas D	8:00 am	Larry Lipman	G	Day of Discovery
Texas D	10:00 am	Mark L. Daniels	S	The Role Inquiry Teaching Methods
Texas D	12:00 pm	Jennifer Taylor-Cox	G	Solving Behavior Problems in Math Class
Texas D	1:00 pm	Robyn Silbey	G	The Math Coach: Create a Vision for Success
Texas D	2:00 pm	Paula Moeller	E	RtI in Mathematics
Other	8:00 am	Ron Brown	S	[in Mustang 6] Rock Your Math Class
Other	12:00 pm	Glenna Tabor	S	[in Austin 6] Small Groups are Simple

Featured CAMT Speakers
Tuesday, July 19

Rooms at the Gaylord Texan

Legend: General = G Elementary = E Secondary = S

Room	Time	Level	Speaker	Title
Grapevine A	8:00 am	E	Ron Brown	Rock Your Math Class
Grapevine A	10:00 am	G	Robyn Silbey	Teach Students to Fish: Engagement, Accountability, Success!
Grapevine A	12:00 pm	S	Larry Lesser	Greater Lesser Thoughts on Assessment
Grapevine A	3:00 pm	S	Dixie Ross	Effective Questioning/Assessment Tools for High School
Grapevine B	8:00 am	G	Catherine Lewis	Develop Professional Learning Community Through Lesson Study
Grapevine B	10:00 am	G	Larry Lipman	Day of Discovery
Grapevine B	12:00 pm	G	Catherine Lewis	Share Your Lesson Study Challenges and Experiences!
Grapevine B	1:00 pm	S	Richard Parr	Transforming H. S. Mathematics Using Transformations
Grapevine C	8:00 am	E	Juanita Copley	Beyond Cute: Appropriate and Intentional Mathematics for the Young Child
Grapevine C	10:00 am	E	Barbara Novelli	Simple Strategies to Support Problem Solving in Your Classroom, Grades K-2
Grapevine C	12:00 pm	G	Jennifer Taylor-Cox	Solving Behavior Problems in Math Class
Grapevine C	1:00 pm	S	Nanci Smith	Differentiating Instruction in the Elementary Math Classroom
Grapevine C	3:00 pm	S	Everly Broadway	Texas Education Agency Mathematics Update—Secondary
Grapevine D	8:00 am	E	Nanci Smith	Differentiating Instruction in the Elementary Math Classroom
Grapevine D	10:00 am	G	Diane Briars	Mathematics Leadership At Work
Grapevine D	1:00 pm	G	JoAnn Wheeler	STAAR Gazing with Rigor
Grapevine D	2:00 pm	S	Steve Leinwand	Some Things We Can Learn from High-Performing
Grapevine D	3:00 pm	S	Mark L. Daniels	The Role Inquiry Teaching Methods in Mathematics
Texas A	8:00 am	E	Greg Tang	Math Learning Centers
Texas A	9:00 am	E	Everly Broadway	TEA Mathematics Update—Elementary
Texas A	10:00 am	E	Greg Tang	Math Learning Centers
Texas A	11:00 am	G	Cathy Seeley	Big Gains from Small Struggles
Texas A	3:00 pm	G	Dan Meyer	Math Curriculum Makeover: Follow Up Session
Texas B	8:00 am	E	David Berg	Making Math Real: The Earliest Development of Number Sense
Texas B	9:00 am	E	Stuart Murphy	Visual Learning and Math: A Sure Bet for All Students
Texas B	11:00 am	E	Kim Sutton	The Sky Is the Limit for Early Math Learners
Texas B	1:00 pm	E	Marcy Cook	Make Sense of Numbers with Number Activities
Texas B	3:00 pm	S	Michael Serra	Teaching Sequential Reasoning Through Games and Puzzles
Texas C	8:00 am	S	Glenna Tabor	Tabor Rotation: Simplifying Small-Group, Differentiated Instruction in Math
Texas C	9:00 am	E	David Berg	Making Math Real: The Earliest Development of Number Sense
Texas C	10:00 am	G	Cindy Cardenas-Kolak	VESTED: Including All Learners in the Diverse Math Classroom
Texas C	1:00 pm	G	Margarita Calderon	How to Teach Vocabulary to Impact Achievement
Texas C	3:00 pm	G	Cindy Cardenas-Kolak	VESTED: Including All Learners in the Diverse Math Classroom
Texas D	8:00 am	S	Richard Parr	[San Antonio 4] Transforming H. S. Mathematics
Texas D	9:00 am	G	Cindy Cardenas-Kolak	VESTED: Including All Learners in the Diverse Math Classroom
Texas D	12:00 pm	G	Dan Meyer	[Exhibit Hall B] Math Curriculum Makeover
Texas D	1:00 pm	G	Robyn Silbey	Teach Students to Fish: Engagement, Accountability, Success!
Texas D	3:00 pm	G	David Molina	STAAR: Focus on Academic Readiness: Are You Ready?
Other	8:00 am	S	Paula Moeller	[Austin 6] RtI in Mathematics
Other	3:00 pm	E	Paula Moeller	[San Antonio 4] RtI in Mathematics

General = G Elementary = E Secondary = S

Featured CAMT Speakers
Wednesday, July 20

Rooms at the Gaylord Texan

Legend: General = G, Elementary = E, Secondary = S

Grapevine A
- 8:00 am — Ted H. Hull (G) — Overcoming Resistance to Change
- 10:00 am — Anne Papakonstantinou (S) — Exploring Finite Differences through Multiple Representations of Functions
- 12:00 pm — Don Balka (S) — Visible Thinking in the Mathematics Classroom
- 2:00 pm — Sam Zigrossi (S) — Are You Ready to Leap Into the 21st Century!

Grapevine B
- 8:00 am — Catherine Lewis (G) — Share Your Lesson Study Challenges and Experiences!
- 9:00 am — Don Balka (S) — Games & Activities in Algebra & Prealgebra
- 12:00 pm — Catherine Lewis (G) — Share Your Lesson Study Challenges and Experiences!
- 1:00 pm — Mary Alice Hatchett (E) — Great Fun! Huge Learning! Grades PreK-3

Grapevine C
- 8:00 am — Nanci Smith (S) — Differentiating Instruction in the Elementary Math Classroom
- 10:00 am — Michael Serra (S) — Cool Investigations in Geometry
- 12:00 pm — Paula Moeller (E) — RtI in Mathematics
- 1:00 pm — Nanci Smith (E) — Differentiating Instruction in the Elementary Math Classroom

Grapevine D
- 8:00 am — Pamela Harris (E) — Fractions Like You Have Never Seen Them
- 10:00 am — Pamela Harris (S) — Fractions Like You Have Never Seen Them
- 1:00 pm — Barbara Nozelli (E) — Simple Strategies to Support Problem Solving in Your Classroom, Grades 3-5

Texas A
- 8:00 am — William McBride (G) — Words Are No Problem Strategies to Learn Math Vocabulary
- 9:00 am — Edward Burger (G) — How to Discretely Teach Creativity from Doodling to Discovering
- 1:00 pm — Douglas Clements (E) — Learning Trajectories? The Core of Standards, Teaching, and Learning

Texas B
- 8:00 am — Bea Luchin (S) — Strategies to Get Them Thinking, Doing, & Talking
- 9:00 am — Zal Usiskin (G) — The Shape of Geometry and the Geometry of Shape
- 11:00 am — Larry Lesser (S) — Greater Lesser Thoughts on Assessment
- 1:00 pm — Stuart Murphy (E) — Communicating – Speaking, Writing, and Sketching – About Math

Texas C
- 9:00 am — Cindy Cardenas-Kolak (G) — Vocabulary in 3-D for ELLS
- 1:00 pm — Kim Sutton (E) — Walk the Number Line
- 4:00 pm — Cindy Cardenas-Kolak (G) — Vocabulary in 3-D for ELLS

Texas D
- (none)

Other
- 8:00 am — Tom Butts (S) — Some of My Favorite Math Questions
- 12:00 pm — William McBride (G) — [Texas 1/2] Words Are No Problem Strategies to Learn Math Voc.
- 2:00 pm — Richard Parr (S) — [Pecos 1] TI-Nspire™ Teacher Edition Software

General =	G
Elementary =	E
Secondary =	S

Puzzle Corner

Sticks #16 Puzzle

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.

Please prepare a sketch of your solution

Arrange 12 craft sticks to form
the following figure.
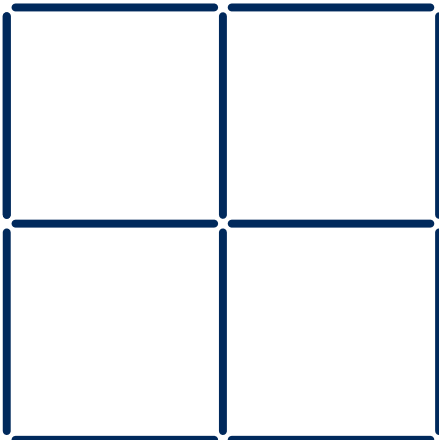
Puzzle: Remove four sticks
to leave two squares.

Sticks #15 Answer

Arrange 12 craft sticks to form the original figure.
Remove one stick to leave three squares.

Shown is a diagram of **a solution.**
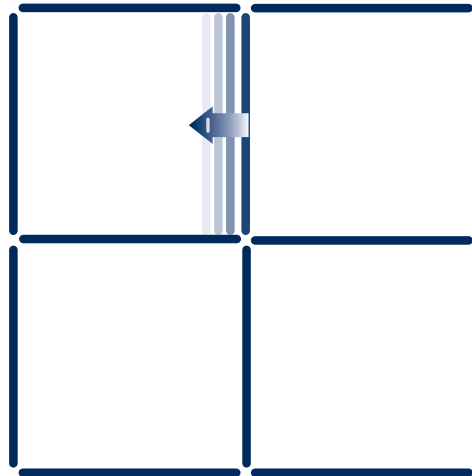
Quotes for Thought

"*Man's mind, once stretched by a new idea, never regains its original dimensions.*"

- Oliver Wendell Holmes
US author & physician
(1809 – 1894)

"*Obstacles are those frightful things you see when you take your eyes off your goal.*"

- Henry Ford
founder of Ford
Motor Co.
(1863 – 1947
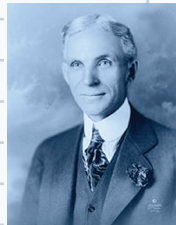
"*Not every child has an equal talent or an equal ability or equal motivation; but children have the equal right to develop their talent, their ability, and their motivation.*"

- John F. Kennedy
35th President of the
United States
(1917 – 1963)

On The Cover

Find the Mathematics…
…in the Great Outdoors of Texas!

Many people only see math as a subject in school. However, math is everywhere you look. Even at the entrance to this central Texas acreage with a small stand of Texas wildflowers, belonging to the 'sunflower' family, a partial cedar post fence, and a section of a 5- rail fence – there is math!

FIND THE MATH?

(1) The number of petals on many flowers is a Fibonacci number. Select two or three of these beautiful yellow sunflower-like flowers and count the petals (you may need a magnifying glass), did you find the number of petals to be one of these numbers: 1, 1, 2, 3, 5, 8, 13, 21,….? These are the first few numbers in a Fibonacci sequence. Can you name the next two numbers in this sequence? Notice how the flowers on the tallest stem seem to spiral around and down the stem? That is a Fibonacci sequence also! Sunflowers tend to follow the sun, so at different times of the day they are facing different directions. What time of day do you think this picture was taken? Why? At what time of day might they be facing straight up towards the sky? What do you think happens at night?

Fibonacci was the name for the Italian mathematician Leonardo Bonaccio of Pisa. As a young man he wrote a famous word problem about some small animals. There may be some of these animals hopping around in this field! What can you find out about the famous Fibonacci problem?

(2) How many adjacent cedar post can you count in this picture? If these posts span a six foot length, how many posts would be needed for a ten foot span? If each post has approximately the same diameter, to the nearest inch what would be the diameter of each post?

(3) Most posts for a 5-rail fence are set about 24 inches deep (below ground). For every inch below ground there is about 2 1/4 inches above ground. What is the above ground post height for this 5-rail fence? Each of the rails is about six inches wide, how many inches apart are the rails?

Here are a few resources that will provide additional ideas about the study of mathematics in the great outdoors:

(1) Fibonacci: Beautiful Patterns, Beautiful Mathematics, NCTM *Mathematics Teaching in the Middle School*, January 2002

(2) On My Mind: Numbers in the Garden and Geometry in the Jungle, NCTM *Mathematics Teaching in the Middle School*, April 2002

(3) Fibonacci Number, http://www.mathdaily.com/lessons/Fibonacci_number

(4) *Counting Wildflowers* (for Preschool through Grade 3), by Bruce McMillan, New York: Lothrop, Lee and Shephard, 1986

As always, enjoy and let us hear about what mathematics you and your students discover from this issue's cover.

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

Recommended Readings and Resources

Blockhead: The Life of Fibonacci
by Joseph D'Agnese

ISBN: 978-0-8050-6305-9
Publisher: Henry Holt and Company / 2010

A school librarian told me about the new book *Blockhead: The Life of Fibonacci* which is a historical fiction set in Pisa, Italy during the Middle Ages. Leonardo Fibonacci was nicknamed "Blockhead" by the townspeople because he was always daydreaming about number patterns.

Many important topics are covered in Blockhead: The Life of Fibonacci, one of which is how Fibonacci's father took him to northern Africa where he learned the Hindu-Arabic number system from merchants. The book includes

Fibonacci's riddle about reproducing rabbits, as well as illustrations of the Fibonacci sequence forming a shell spiral. A lesson plan for using the book can be found at my Mathematics through Children's Literature web site:

<faculty.tamucc.edu/fbruun>

Faye Bruun, Ed.D. ● *<Faye.Bruun@tamucc.edu>*
Assistant Professor ● *Texas A&M University - Corpus Christi*

Elementary Math Teacher with Math Anxiety?

You are standing in front of your class – about to write on the board. You have to explain addition of fractions. And, you start to sweat. Your mind drifts. You remember being in elementary school and about to learn addition of fractions. You recall "numerators," "denominators," and something to do with the word "common." And, just as now, you remember being ready to write, but frozen and unable to move.

The teacher kept talking, but the words became more and more distant. The numbers she wrote on the board were blurry. And when the teacher said the numbers represented "fractions," you lost all control.

Now, you are in front of your own class of students. You are the teacher. You know the terms. You have the answers. But you have the same feelings you had when you in elementary school. You are just as anxious now as you were then. How can this be? You are not supposed to lose control, right? Well, maybe it is not right. Maybe, it is wrong to some degree! You are not alone.

Research indicates that a disproportionate percentage of elementary teachers experience mathematics anxiety (Buhlman & Young, 1982; Levine, 1996). Their lack of confidence transfers to the students. Mathematics anxiety has its "roots" tied to teachers and teaching (Tobias, 1998; Chavez & Widmer, 1982; Wood, 1988). Mathematics students have stated that the origins of mathematics anxiety include teacher-related behaviors such as "intimidating comments, inability to explain concepts, lack of enthusiasm for subject matter, and lack of patience with students" (Plaisance, 2007, p. 110).

But, you have to teach the math and you know that you are not as confident as you want to be. So, what should you do? A number of approaches can increase your self-confidence and increase your ability to teach mathematics effectively. Perhaps the most important way to boost your self-confidence is to learn more about mathematics through professional development. Knowing more math allows you to view the "big picture" of mathematics and to recognize where each topic you teach fits into that big picture. Check with your principal, your school district, your state department of education, your local universities, professional teacher organizations, etc. Investigate all avenues of learning more mathematics.

Second, become your own "professional developer." Find books that explain math concepts step-by-step. Look for books that explain what is happening in each step and what mathematics allows it to happen. An example of these types of books include NCTM's new *Essential Understanding* series with grade-specific topics ranging from "Number and Numeration" for grades PreK-2 through "Reasoning and Proof" for grades 6-8. The series focuses on topics that teachers need to understand "in order to teach with confidence." Another book that helps teachers understand the mathematics they are required to teach is *Math Matters: Understanding the Math You Teach Grades K-8* written by Suzanne H. Chapin and Art Johnson. Use the Internet to search for information about specific mathematics topics and strategies for teaching the topics. One of the most useful websites is that of the National Council of Teachers of Mathematics (NCTM) *<www.nctm.org>*. The NCTM website offers access to the NCTM *Standards, Focal Points*, organizational journals, online professional development, outstanding lesson plans, and many more resources.

Learn what you can do to help your students cope with their own mathematics anxiety. Research has determined that there are certain teaching methods that reduce mathematics anxiety. A good mathematics teacher encourages and promotes conceptual understanding of mathematics. While there are parts of mathematics that must be memorized, conceptual understanding is critically important for content retention. Reys et al., (2007) wrote that when a student simply attempts to memorize mathematics without conceptual understanding, he is likely to fall victim to mathematics anxiety.

The National Council of Teachers of Mathematics (1995a) suggests certain teaching methods can decrease or help students avoid mathematics anxiety. NCTM suggestions include: 1) Accommodate different styles of learning; 2) Create a variety of testing environments; 3) Design positive experiences in mathematics classes; 4) Emphasize that mathematical ability is not a measure of self-worth; 5) Make mathematics relevant to life; 6) Allow students input into their own evaluations; 7) Allow for different social approaches to learning mathematics; 8) Encourage original thinking instead of rote memorization; 9) Characterize mathematics as a human endeavor.

Teachers of all subjects should utilize educational research to improve their teaching and to make the most of every teaching experience. These teaching experiences simultaneously occur with students' learning experiences. And research does indicate that when certain teaching methods, such as those suggested by NCTM, are used to decrease or help students avoid mathematics anxiety, students' levels of mathematics anxiety typically do decrease (Hembree, 1990). The best strategy is prevention of mathematics anxiety with the second best strategy being early detection (Reys et al., 2007). Make yourself familiar with the best teaching methods and employ them in your classroom to decrease student mathematics anxiety.

Do not be afraid to let your students know that you have not always been as comfortable with mathematics as you are now. Let them know that you are continuing to study and work hard to understand the mathematics in order to be able to teach the content in a clear and understandable way. Occasionally, you will make an error in the classroom. Do not become flustered. Use that event as a prime "teachable moment." Let your students see how you think through a problem. Allow them the advantage of seeing the process of mathematics in action by their own teacher. In class, teachers usually work through problems easily and effortlessly. This gives students a false impression. Frequently, students say, "It looks so easy when you do it." Let them know it is not always easy. Everyone has to work and practice to get better at "doing" and "understanding" mathematics.

So, while you have to teach math, you can do it without anxiety. Be alert to your own needs and to your students' needs. Remember what you can do to decrease your math anxiety and what you can do to decrease your students' math anxiety. Take some time to learn some more math and how to teach that math with appropriate methods. Share that knowledge with your students. Enjoy the math. Be enthusiastic in teaching math and think about this - if math anxiety can be transferred to students, then why can't you transfer your enthusiasm for mathematics to students?

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Announcements: TIMSS Videos

Dear Colleagues,

The Trends in International Mathematics and Science Study (TIMSS) is an ongoing research project conducted every four years. It has provided mathematics educators from around the world with information about teaching and learning in a variety of settings. If you have ever wanted to see what a mathematics class looks like in Japan or Germany, as well as classes in the United States, you now have access through a public use website.

The following announcement was sent by Dr. Jim Stigler, UCLA.

We are pleased to announce that the 53 public use lessons collected as part of the TIMSS video studies are now available for everyone on a new website, timssvideo.com. Users must register on the site to access the videos, but registration is free. In addition to the 53 full-length videos of eighth-grade mathematics and science lessons from seven countries, the site also provides full English-translation subtitles for each lesson, a searchable transcript, and a set of resources collected with each lesson such as scanned text materials and teacher commentaries. The site also includes a discussion forum where users can share ideas for how they are using the site, and suggest new features that might be added in the future. The site is a project of UCLA and the Carnegie Foundation for the Advancement of Teaching. Funding was provided by The William and Flora Hewlett Foundation.

Please explore the site, and feedback is always welcome!

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Research Associate ◉ Charles A. Dana Center,
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Legislative Update and Advocacy

As you no doubt know, the 2011 Legislature is focused on budget issues. There are quite a few bills that have been filed related to education (1,894 as of this writing), although there are no matches when searching for mathematics education. Some examples of bills filed include 82(R) HB 1582 (Author: Farias) which is about educator preparation programs in certain counties or 82(R) HB 1549 (Author: Howard, Charlie) which is about certification for certain public school administrators. These examples are not based upon a thorough review, just a quick look.

For those of us in K-12 education, I thought another interesting bill is 82(R) HB 9 (Author: Branch), Excerpt: STUDENT SUCCESS-BASED FUNDING RECOMMENDATIONS. (a) The legislature finds that it is in the state's highest public interest to evaluate student achievement at institutions of higher education and to develop higher education funding policy based on that evaluation. Therefore, the purpose of this section is to ensure that institutions of higher education produce student outcomes that are directly aligned with the state's education goals and economic development needs. This bill has been read and referred to the Higher Education Committee.

The bill (HB 104) that was filed to merge THECB with TEA has been read and referred to the Higher Education Committee. If you want to read these bills or the others go to: *<www.capitol.state.tx.us>* and type in education in the search legislation box at the top of the page. I have no idea what bills will make it out of committee and reach the floor. If any of these do, it will most likely be at the very end of the session.

Another report that adds perspective to the budget issues on education is an October 2010 publication by TASB and

TASA: Report on School District Mandates, Cost Drivers in Public Education. You may find the publication at *<www.tasb.org/legislative/documents/2010mandates.pdf>*. Quoting from Page 4

> In 2002, the Texas Association of School Administrators (TASA) and the Texas Association of School Boards (TASB) compiled the Report on School District Mandates, a comprehensive list of the various state mandates placed on school districts that contribute significantly to the rising costs of public education. TASA and TASB have updated and revised this document to include mandates passed through the 2009 legislative session. This document encompasses the majority of mandates passed since 1995 but does not contain a complete list of all mandates on Texas school districts.

The next State Board of Education meeting is scheduled for April 13-15, 2011. We should learn at this meeting who the SBOE members have appointed to the mathematics TEKS revision committee. You may access the video of these sessions either live or afterwards in the archives on the TEA website at *<www.tea.state.tx.us/index4.aspx?id=4473>*. Information on the TEKS revision process may be found at *<http://www.tea.state.tx.us/index2.aspx?id=6148>*.

To identify your elected representatives, you may go to *<www.capitol.state.tx.us/Home.aspx>* and enter your address in the box on the right. Please share your thoughts with them, your voice is important.

■

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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 2012, please download the forms from our website. Please submit your nomination by Dec. 31, 2011.**

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

A Bucketful of Thinking

Like many elementary mathematics teachers across Texas, and indeed across the nation, I often feel an acute tension in today's climate of high-stakes testing and increased accountability. This disequilibrium comes about as a result of two ostensibly competing outcomes. On one hand, we all want our students to be proficient manipulators of numbers. On the other hand, we also seek to increase our students' ability to understand and solve complex mathematical problem-solving situations. These two goals frequently seem to exist in contradiction, but this need not be the case. It is possible to develop students' computational fluency and accuracy while also giving them opportunities to engage in mathematically rich problem-solving experiences. Computational fluency and proficiency should not be an end in themselves. As the NCTM Principles and Standards for School Mathematics states:

> Students who can both develop and carry out a plan to solve a mathematical problem are exhibiting knowledge that is much deeper and more useful than simply carrying out a computation. Unless students can solve problems, the facts, concepts, and procedures they know are of little use. The goal of school mathematics should be for all students to become increasingly able and willing to engage with and solve problems. (NCTM, 2000, p. 182)

The following activity is offered in an effort to inspire other elementary mathematics teachers to look for and develop rich problem-solving opportunities for their students. My 4th grade students were presented with the following problem.

Maria has a bucket that was filled half way. She added 9 gallons of water to the bucket and found that it was then $^7/_8$ full. How much water can the bucket hold altogether when full?

At first glance, this problem might seem too complex for the average older elementary school student, but the students in my classroom found it accessible from a variety of approaches and at varying levels of mathematical sophistication. In fact, one of the most striking benefits of a truly challenging mathematics problem is the opportunity it affords students to make sense of its key mathematical ideas at a level which is most suited to their current understandings and abilities. (Van de Walle, 2003, p. 68) As you will see below, this problem did indeed allow the children to approach the problem from a variety of conceptual points of view. It should be noted that these students had not yet had any classroom experiences with operations on fractions.

In the weeks leading up to this lesson, my class had developed a process for approaching problems whose answer was not almost immediately obvious. My students came to appreciate that not all word problems were truly mathematical problems for them. Many of the problems listed in the "Problem Solving" portion of their math textbook took little effort beyond simply inserting numbers and using basic algorithmic thinking in order to find an answer. In the few weeks prior to this lesson, I had presented the children with several complex problems for which they knew no easy method to arrive at a solution. As a result of these more complicated problems, the students agreed that they must have some plan in place when they approached a problem whose answer they could not quickly find. After several days of discussion, on a large poster we had written:

How to Approach a Real Problem:

1) Understand the question fully

2) Make some kind of representation for the problem

3) Think of a way to use the representation to begin solving the problem

4) If that representation does not help, try another one

5) Check to see if your answer makes sense

On the day of this lesson, we reviewed this information again, and I presented the students with the bucket problem. Students had access to unifix cubes, fraction tiles, base-10 blocks, multi-link cubes, and many other manipulatives in the classroom. The students worked in small groups seated on the floor,

and I watched with both optimism and apprehension as they commenced.

The students were truly engaged in the problem-solving process. The room was buzzing with conversation and the clicking sounds of manipulatives being shuffled about as many of the student wrestled with a way to concretely represent this problem. Their solution processes clustered around one of three fairly distinct approaches. (The student names given are pseudonyms.)

Solution 1 by Dalia, Samira, and Bricenia
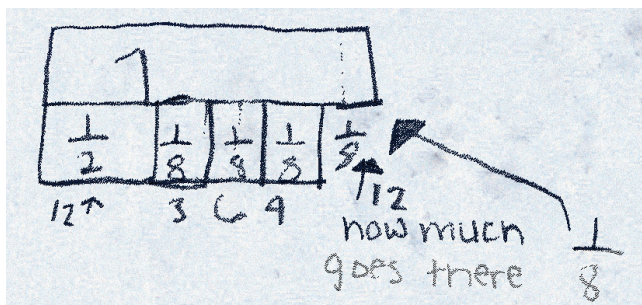
These girls immediately reached for a set of fraction tiles. They spent some time developing a plan, but I did not hear the whole conversation. Eventually, they laid out the pink $1/2$ fraction tile and 3 of the dark blue $1/8$ fraction tiles. They seemed a little confused at this point, so I tried to ask some gentle questions. I did not want to "get in the way" because I knew they could solve the problem with minimal assistance. They told me that the $1/2$ fraction tile stood for the amount of water in the bucket to begin with and the $1/8$ fraction tiles stood for the amount Maria added. I asked them if they knew what either amount represented in terms of gallons. Dalia thought for a second and said, "The $3/8$ part is the same as the 9 gallons of water Maria added." Then in near unison, she and Samira said, "Oh, so 1 blue tile is 3 gallons." I left them to continue, knowing they would have an answer soon. When I asked them later to explain to the class what they did after I left them, Dalia said: "We knew that the 9 gallons of water was the same as the $3/8$, so that meant each $1/8$ was 3 gallons. Since there are $8/8$ in the tank, we multiplied 8 times 3 and got 24. So the tank holds 24 gallons of water." (Dorian and Jesus also used a similar approach.)

Solution 2 by Emily and Abby
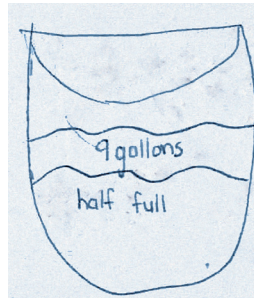
These girls started with base-10 blocks but soon gave up. I could not get to them in time, so I am not sure what they were doing with them or why they gave up. I then saw them get the fraction tiles. After a few minutes, I heard an exasperated Abby say, "These aren't helping. Let's try another representation." I excitedly stopped the whole group and pointed out what they were doing. I wanted the other groups to remember it was smart to try another approach if their current one proved unhelpful. Finally, Emily and Abby settled on a picture. Their first picture was not completely helpful because they did not divide it into eighths. Once I asked them a few questions and helped them realize such a division might be useful, they drew lines on their picture to represent the eighths. This led to real progress on the problem, and they had an answer within a few minutes. They realized that the 9 gallons Maria added was equivalent to $3/8$ of the bucket. Then they reasoned that each eighth of the bucket contained 3 gallons of water. They labeled each $1/8$ portion of the bucket on their picture with a 3 and then counted all the threes to reach the top of the bucket. (Nancy and Miguel used the same approach.)

Solution 3 by Luke and Morgan
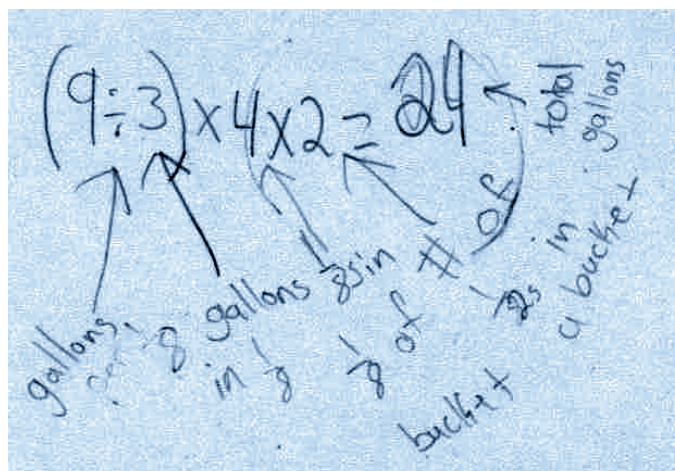
Luke quickly realized that the 9 gallons could be split into 3 equal parts of 3 gallons each. Morgan took this idea and found out how much water was in

half the bucket. He then doubled that to determine the amount in the whole bucket. Luke simply multiplied by 8 to find the total amount of water. I asked the boys to try another way. They quickly drew a very nice picture – although it represented the answer and not really the solution process. I asked them to try another way! They wrote an equation: $(9/3) \square 4 \square 2 = 24$. I asked them to explain that to the whole group. Luke said, "Nine divided by three tells you the amount of water in $1/8$ of the bucket. There are $4/8$ in half the tank, so you have the multiply 3 by 4 to find out how much water is in $1/2$ the tank. Then multiply that by two to find the amount in the whole tank."

Overall, I was very pleased with how the students undertook this problem. In one sense I did not feel like I was teaching a lesson because I did very little work! I have come to realize that my students should be working as hard as (or maybe harder than) I do. Such was the case during this lesson. The students were extremely engaged and focused, and almost an hour and a half passed quickly.

The strategies used by the students very closely mirrored what I anticipated. I had not been 100% sure which group would choose which strategy before the lesson began, so it was interesting to watch the various groups gravitate toward an approach – or several approaches!

We finished with a brief whole class discussion of the problem itself. I also tried to get the students to reflect some on the process they went through as they wrestled with the problem. The students agreed that it was a "real" mathematical problem and not a simple matter of plugging numbers into an equation (although Luke pointed out his equation at the end). The main idea that surfaced during the discussion was the need for persistence. Several of the students commented on how they had to keep trying different ideas in order to find a way that worked and made sense to them. I was very excited to hear that because I know they often get frustrated and give up easily in the face of a challenge. In the past I have often shied away from giving my students challenging problems because I do not want to frustrate and

discourage them. I am becoming more convinced that my students can do more than I realize and that what they learn in the context of an authentic problem is vastly more beneficial than what they "learn" when I keep things simplistic.

Although I used this problem in a 4th grade classroom, there are many other potential entry points that would make it a beneficial experience for students in middle and high school. The approaches my students used to solve the problem were appropriate for where they were on their learning trajectories. Students with different levels of understanding might access the problem from another entry point more suited to the mathematical tools at their disposal. Some possible solution strategies which might be used in higher grades follow.

> Proportional Reasoning – Since $3/8$ is $3/4$ of $1/2$, a student might be able to ask him/herself, "Nine is $3/4$ of what number?" Since 9 is $3/4$ of 12, that means there are 12 gallons in half the bucket. Consequently, there are 24 gallons in the entire bucket.

> Partitive Division – The question can be rephrased as "If 9 gallons is $3/8$ of the whole bucket, then how much is in the whole bucket?" A student could represent this with the number sentence $(3/8)x = 9$ gallons, where x represents the total amount of water in the bucket. A student would likely solve this by dividing 9 by $3/8$, using the invert and multiply algorithm. Alternately, the student could rely on an understanding of units to see that since there are $2 \, 2/3$ groups of $3/8$ in the whole bucket, multiplying 9 by $2 \, 2/3$ will provide the amount of water in the whole bucket.

> Algebraic Reasoning – A student familiar with algebra might set up an equation to solve this problem: $1/2 \, n + 9 = 7/8 \, n$, where n is the number of gallons in the whole bucket.

We all seek to help our students develop computational fluency, yet we also endeavor to increase their competence and confidence when faced with complex problems where computational fluency is not the primary factor for a successful solution.

For my students, this activity was an opportunity for them to use their computational skills in a context where the objective was to make sense of a truly challenging mathematical situation. I know it can be frightening as a teacher to veer away from a heavy emphasis on computational skills, but I have found the kind of mathematical thinking involved in a rich problem like this is extremely beneficial to developing my students into successful problem-solvers.

References

National Council of Teachers of Mathematics (NCTM). *Principles and Standards for School Mathematics*, Reston, VA, 2000.

Van de Walle, John, "Designing and Selecting Problem-Based Tasks." In *Teaching Mathematics through Problem Solving: Prekindergarten-Grade 6*, edited by Frank K. Lester Jr., pp. 67-80. Reston, Va.: National Council of Teachers of Mathematics, 2003.

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Math Puzzle Activitiy

For each puzzle: What Doesn't Belong? Why?

A	
	130
	15
	250
	62

B	
	121
	22
	44
	89

C	
	17
	19
	23
	25

Possible Solutions:

(A) 62 does not belong because it is not divisible by 5; 15 does not belong because it is not even; 62 does not belong because its digits are in descending order; 130 does not belong because it is not in sum of digits in not sequence with others.

(B) 89 does not belong because it is not divisible by 11; 89 does not belong because it is not a palindrome; 121 does not belong because it is a 3-digit number

(C) 25 does not belong because it is not prime

TCTM 2011 Election

Vote Online May 1-May 31, 2011

This year TCTM will conduct the election for board members online only. To vote, please go to our website <www.tctmonline.org> and click on the Election for 2011 link on the home page left side bar.

The 2011 Election page will take you to a list of all the positions and the candidates that have agreed to serve. Click on each name to see the biography of that candidate. From the 2011 Election page you will then click on Vote Now to cast your ballot. You may vote from May 1 through May 31, 2011.

The candidates for the TCTM Spring 2011 election are as follows:

President Elect – Janet Vela and Mary Alice Hatchett;

VP Elementary – Ann Roman and Juli D'Ann Ratheal;

Treasurer – Kelly Meshell and Martha Godwin;

Regional Directors

Southeast – Kathy Fuqua and Candy George;

Southwest – Rita Tellez and Veronica T. Hernandez;

South – Shere Salinas and Elaine Young

2011-12 TCTM Mathematics Scholarships

There are ten $2000 scholarships available for 2011-12. Any student attending a Texas college or university - public or private - and who plans on student teaching during the 2011-12 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 must be postmarked by May 1, 2011.

2011 President's Grant to CAMT

There are eight $600 President's Grants available for 2011. The President's Grant is intended to support mathematics educators with a district or campus affiliation with more than five years of teaching experience in Texas to attend CAMT. The 2011 recipients were not known at press time, but will be listed online now at <www.tctmonline.org>.

2011 CAMTerships

There are eight $600 CAMTerships available for 2011. The CAMTership is intended to encourage beginning teachers to attend CAMT. The 2011 recipients were not known at press time, but will be listed online now at <www.tctmonline.org>.

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>.

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, Rebecca Ontiveros. 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>.

CAMT 2011: The Start of Something Big

The Conference for the Advancement of Mathematics Teaching (CAMT) 2011 will be held July 18-20, 2011, at Gaylord Texan in Grapevine, Texas. For more details visit the CAMT website at
<www.camtonline.org>

TCTM 2010-11 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
1976-1978	Shirley Cousins	1990-1992	Karen Hall	2006-2008	Jo Ann Wheeler
1978-1980	Anita Priest	1992-1994	Susan Thomas	2008-2010	Paul Gray
1980-1982	Patsy Johnson	1994-1996	Diane McGowan		
1982-1984	Betty Travis	1996-1998	Basia Hall		

Mark your calendar for these important dates!

Coastal CTM	Corpus Christi, TX	June 17, 2011
Texas South Plains CTM	Canyon, TX	Sept 24, 2011
Greater El Paso CTM	El Paso, TX	October, 2011
Austin Area CTM	Austin, TX	May 3, 2011
NCTM	Indianapolis, IN	April 13-16, 2011
Rio Grande Valley CTM	Edinburg, TX	November 19, 2011
CAMT 2011	Dallas, TX	July 18-20, 2011

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