I want to speak to you about the importance of growing our membership. For over 50 years GCTM has been THE go-to organization for rank and file mathematics teachers across our state. Our programs and resources are generally offered to all mathematics teachers regardless of membership status. GCTM is not a closed group of those who feel that they know best for everyone else. On the contrary, GCTM is committed to the principle of collegiality; the voice of each individual brings something important to the table. The work of education (and it is work!) proceeds best when teachers support, learn from, and serve each other.

What is the value of a teacher's individual membership? It goes way beyond the discount at GCTM conferences, Academies, etc. It goes way beyond the value of the journal you are now reading. Membership dollars build a strong Council that can continue to support mathematics teachers in traditional ways while, at the same time explore a wider range of means for helping teachers.

Your membership dollars:
- Are funding the development of a more effective social media outreach
- Will fund a "Mathematics Education Day" at the State Capitol during the 2014 Legislative Session to help our state law makers better understand the needs of teachers and learners as well as the legislature's role in fostering quality mathematics
- Helped the Academies become a reality last summer and again this summer, providing direct, timely help to over 2,500 classroom teachers preparing to implement the CCGPS
- Are funding, in part, the outreach to bring the TODOS (an NCTM-affiliated advocate for equitable and high quality mathematics education for all students- in particular, Hispanic/Latino ones) to Georgia, and will help bring the MATH MIDWAY 2 GO to Rock Eagle in the fall of 2013
- Fund, in part, the expense of bringing national-level mathematics educators to Rock Eagle. These visiting colleagues enrich our state by connecting us with the national and international conversation regarding mathematics education and classroom practice

Please, don't think of your individual membership as something just for you; something you purchase so that you get discounts on registrations. Think about your membership as ‘putting your money where your mouth is” with respect to strengthening and improving what goes on in mathematics classroom across our state.

Almost 50% of our members do not renew. Please don't be part of this 50%. Renew your own membership and, even better, recruit your non-member colleagues.

I challenge each of you to recruit two new members between now and Rock Eagle. When you meet this challenge please drop me a line. I'd love to hear from you.
Pack It Up and Move It Out

by Cathy Franklin, Central West Region Representative

Another school year is over and many of us will be either moving to a new school, a new building or even a new grade level. As you clean up and get ready for the new school year, you may find items that you no longer need.

Place these unwanted items that are new or slightly used, and pack them in a box marked "Georgia Mathematics Conference". Last year’s Garage Sale was a great success. Many teachers found treasures that others had discarded. It is a great day when you get an item that you really need and get it for a donation.

We hope to have another room packed with items for you to take back and use. Look for more information about the location of the Garage Sale this year at Rock Eagle! Then bring your boxes to that location, and be sure to look around and see if you too can find a treasure!

The Georgia Council of Teachers of Mathematics wants to take this time to tell you THANK YOU for coming and THANK YOU for giving!

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Membership Reminders

by Susan Craig, Membership Director

One of the best things about teaching is that each year there is an ending. We finalize our lessons and grading, clear our desks and close the doors. Most of us spend time reflecting on the past year and making plans for the next. But the closure is refreshing.

Take a few minutes from your relaxation to include GCTM tasks. Won’t you help make GCTM better by completing the following checklist?

1. Logon to the website and update your membership record. There are many records missing information such as your school, grade level, phone number, region.

2. Catch up with the past issues of eREFLECTIONS. The school year is busy and maybe you missed some good articles along the way. You can find these on the website.

3. Volunteer! Check in with an officer or your regional representative and volunteer to help out with GCTM activities. There is always a place for willing helpers at summer academies, Rock Eagle, regional activities, and committee work.

Special Note to Undergraduate Student Members

Student memberships expire on July 1, 2013. If you are continuing your studies, you may renew online. PLEASE update your mailing address as you move residence at the end of the year.

If you are completing your degree and beginning your teaching career, please consider GCTM as an important professional support to you. Our membership costs are low and the benefits great!

Happy Summer Everyone!
Welcome New Executive Committee Members

Simone Wells-Heard - Metro-East Region Representative
I am currently working as the Middle School Mathematics Coach for Rockdale County Public Schools & have held this position for the last five years. I have taught at both the middle & high school level here in Georgia & in California. I am excited about this new opportunity to serve & work with Mathematics teachers in the state of Georgia.

Patrick Morgan - Treasurer
Patrick has taught middle grades mathematics for the last 6 years at Turner Middle School in Douglas County. Last year students voted him PTSA Teacher of the Year.

He has a Master’s Degree in Finance from Northeastern University in Boston, with a concentration in International Markets. The degree program included taking courses and visiting businesses in Singapore, Malaysia and Thailand.

Valerie Flagg - Intern for East Central Region Representative
I have been teaching for seven consecutive years all of which have been in Bibb County. I am a lifelong learner and lover of mathematics as I consistently seek professional development opportunities. I have been a member of GCTM for four years and am always excited about attending the GMC every October at Rock Eagle. I am exciting about being on such a prestigious committee and look forward to the multitude of benefits it affords such as: learning, networking, traveling, sharing, and most importantly advocating for and meeting the needs of all learners.

Marvin Fuller - Intern for Southeast Region Representative

Ned Colley - Vice President for Awards and Honors

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www.thedigitalpen.com 706-346-8731
### Academy 1
June 12 & 13, 2013  
Wednesday & Thursday

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### Academy 2
June 19 & 20, 2013  
Wednesday & Thursday

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### Academy 3
July 9 & 10, 2013  
Tuesday & Wednesday

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### Academy 4
July 18 & 19, 2013  
Thursday & Friday

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Did end of the year pressures leave you drowning in missed deadlines? 
GCTM/GaDOE is throwing out a lifeline by extending the summer academy registration for Academies 1, 2, and 3 to May 29; and Academy 4 to June 15. 
Don't miss the boat for this great opportunity to "Test the Waters of CCGPS: Anchoring Instruction with Assessment". 
Go to [www.gctm.org](http://www.gctm.org) under the 'Academies' tab to register today. 
See you this summer!
54th Annual Georgia Mathematics Conference at Rock Eagle, Georgia
October 16-18, 2013

Make your plans now to attend the 54th Annual Georgia Mathematics Conference at Rock Eagle, to be held October 16 - 18, 2013.

Our keynote speaker for Thursday evening, as well as 2 daytime workshops, will be Mr. Dan Meyer, of blog fame.

His topic for Thursday night will be: Video Games & Making Math More Like Things Students Like.

“Students around the world are playing thousands of hours of video games every day and, in many cases, they’re enjoying those games more than they enjoy our math classes,” said Meyer. “Let’s look at several of the most popular video games of all time — Angry Birds, the Portal series, Braid, and others — and pull out some lessons. As task designers, test givers, and classroom managers, what can we learn from those games?”

If you want to learn how to incorporate the Standards for Mathematical Practice into your classroom, GMC is the place for you!

If you are adept at employing the Standards for Mathematical Practice and are willing to share your ideas with others, fill out a speaker's proposal and be the catalyst to help others in their journey to become excellent mathematics teachers.

Many other exciting speakers and workshops are being scheduled, so make GMC part of your long-range plan!

Check the GTCM webpage for current information on the Georgia Mathematics Conference 2013.
The GCTM Middle School Math Tournament was held at Thomson Middle School in Centerville GA on April 20, 2013. Middle schools across the state were invited to register up to eight students to compete. The tournament consisted of a 30 question multiple-choice test with a 45-minute time limit; 10 individual ciphering problems, each problem with a two-minute time limit; 3 rounds of four pair ciphering problems (in which students from a school formed teams of two), each round with a four-minute time limit; and a four-person team "power question," in which the team solves a complex problem with a 10-minute time limit.

The tournament is designed to challenge middle school students and to reinforce classroom skills. However, we also make sure the students have fun! At the conclusion of the tournament, students participate in a fun "Frightnin' Lightnin'" Round, where students must be quick on the draw to answer math problems posed orally. The winners of this round get candy!

Trophies went to the top five teams and the top ten individuals. The top teams are below.

1. Stratford Academy, Macon
2. Sculley Academy, Suwanee
3. Paideia, Atlanta
4. Woodstock Middle School, Woodstock
5. Riverside Middle School, Evans

Seventy-eight students from twelve schools participated. Sponsors that are members of GCTM only had to pay a $10 registration fee or submit five multiple-choice questions for possible inclusion in a future tournament. The next GCTM middle school tournament is scheduled for April 19, 2014.

The following problem had the highest number of correct responses (74 of the 78 students answered it correctly), and is therefore considered the easiest question on the written test.

Test Problem #10: Baljeet can put together one of Ferb's mini-robots in 20 seconds. Buford can put together one of Ferb's mini-robots in 45 seconds. After 3 minutes, how many more mini-robots does Baljeet have than Buford?

a) 2  
b) 3  
c) 4  
d) 5  
e) 9

Since only 12 students answered the following problem correctly, the following problem is considered the most difficult problem on the written test.

Test Problem #28: Carl rolls three regular, six-sided dice simultaneously. What is the probability he will roll two fives and one six?

a) 1/216  
b) 1/180  
c) 1/125  
d) 1/72  
e) 3/20

As for the Individual Ciphering problems, the easiest problem was the first one. 75 students answered this problem correctly.

Individual Ciphering #1:
Evaluate \((x^2 - 4)/(y + 3)\) if \(x = -8\) and \(y = 7\).

However, only 5 students answered the following problem correctly.

Individual Ciphering #8:
What is the probability that a randomly selected two-digit positive integer is a perfect square or a perfect cube? Write your answer as a reduced fraction.
For the Pair Ciphering questions, the students work with a partner. In each round, they receive four problems at once to work on together. The easiest and the hardest problems happened to be in the same round! Of the 38 pairs of students participating in the pair ciphering round, 25 pairs answered the following correctly:

Pair Ciphering #1-1:
The Taipei 101 Tower in Taiwan is the tallest building in the world and is 1/3 of a mile high. How tall is this building in feet?

Only one pair answered this question correctly:
Pair Ciphering #1-3:
The sum of the two areas of two identical circles of radius $r$ is equal to the area of one bigger circle of radius $R$. Write the ratio of $r$ to $R$.

It is interesting that the most difficult problems seemed to be those involving probability. Could this pinpoint a weakness in the mathematical education of our students for these types of problems? Or are these too simply difficult for middle school students? I will leave that question for you to ponder!

Answers: D; D; 6; 7/90; 1760; $\sqrt{2}/2$

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Georgia Mathematics Student Bianca Papa Wins Award!

On May 6, 2013, Bianca Papa received a $5,000 scholarship by The Actuarial Foundation. This past school year Bianca was a junior at West Forsyth High School and was a student of Ms. Brock and Mr. Pavlicek pictured with her here. The competition involved a financial project through Project Math Minds. It was designed for students from 3 groups: members of Mu Alpha Theta, Youngstown State University MathFest participants, and University of Illinois students.

These students were challenged to estimate the total cost of a 4-year college degree, and compare it to the return on that investment post-college. Bianca chose 3 institutions leading to 3 professions and she made 3 assumptions concerning her finances post-college.

The project was created and evaluated by actuaries. As there were no right or wrong answers to this project, students were evaluated on the evidence of their understanding of finance and investments over time. Judges focused on the assumptions made and developed, and the financial implications of these assumptions.

Congratulations to Bianca, and "way to go" Georgia mathematics teachers!

*The Actuarial Foundation is a 501(c)(3) organization established in 1994 to help facilitate and broaden the actuarial profession’s contribution to society. The mission of the Foundation is to develop, fund, and execute education, scholarship, and research programs that serve the public and the profession by harnessing the talents and resources of actuaries. The Foundation’s vision is an educated public in pursuit of a secure financial future.*
GCTM State Math Tournament News
by Chuck Garner, VP for Competitions

The 37th annual GCTM State Math Tournament was held at Middle Georgia State College in Macon, Georgia on April 27, 2013. Schools are invited to the state tournament based on their performance on previous Georgia tournaments throughout the 2012-2013 school year. Thirty-five invited schools attended this year’s state tournament. Four students are selected to represent each school. Twenty-three individuals were also invited to try-out for the state-wide Georgia ARML team, making a total of 164 participants.

The tournament consisted of a very challenging written test of 45 multiple-choice questions and 5 free-response questions with a 90-minute time limit; 10 individual ciphering problems, each problem with a two-minute time limit; and a team round. The team round consisted of 12 problems for each team to solve while working together within eighteen minutes.

The student with the best improvement at the state tournament from last year was given the Steve Sigur Award for Most Improved Performance. This award, named in honor of the great mathematician, teacher, and mentor Steve Sigur, went to Matthew Torrance of Woodward Academy. Each participant and their school sponsor was given a 2013 State Tournament T-shirt.

The top five teams and the top fifteen individuals are listed below.

TOP TEAMS:
1. Rockdale Magnet School
2. Northview High School
3. Gwinnett School of Math Science and Technology
4. Columbus High School
5. Wheeler High School

TOP INDIVIDUALS:
1. Jeremy Rachels, Rockdale Magnet School
2. Monica Agrawal, Chamblee Charter High School
3. Edward She, Lakeside High School (Evans)
4. Timothy Gieseking, Gwinnett School of Math Science and Technology
5. Michael Liang, Northview High School
6. Nolan Handali, Norcross High School
7. Anchen Yao, Parkview High School
8. Aaron Sommer, Columbus High School
9. Ryan Chen, Brookwood High School
10. Eujin Jang, Walton High School
11. John Shen, Westminster
12. Rickey Jang, Northview High School
13. Ryan Dickmann, Columbus High School
14. Mike Wang, Gwinnett School of Math Science and Technology
15. Hubert Tang, Autry Mill Middle School

The Georgia High School Mathematics State Tournament is invitation only, and the registration is free. The next State Mathematics Tournament is scheduled for April 26, 2014.

View an item analysis of the competition problems from this tournament.
Making a Video  by Chuck Trader

Making an FREE Xtranormal video can be both a fun and educational learning experience for students. There are FREE accounts available as well as paid accounts that offer more features. Instructions for making videos are easy to follow and are available from the website.

Teachers and students can make a 3-D movie by choosing their character, their environment, and any background sounds they might want to insert. (With a free account the choices are limited, but that is not a negative, especially at first.) Then the student can type in the words that will be said by each individual character while inserting gestures and various camera shots to help with stressing any particular point. Anything produced can be previewed and edited as needed.

It is very easy for students to learn the basics quickly. I also use it to incorporate video into both lessons and review. It can also be inserted into a PowerPoint presentations or SmartBoard lessons as students really enjoy watching and listening to the video.

Here are some easy steps to use to make a teaching video this summer:

1. Decide what concept you want to teach/highlight
2. Begin with just 2 characters
3. Write a short script of what you want these 2 people to say to each other
4. Go to the website and sign up for a free account
5. Choose your characters and setting
6. Type in your script as it is
7. Preview it, then add motions

Once you have tried a few teaching videos, you will see how much time is needed to make one and what steps you want your students to take in creating a video.

Decide on a rubric that fits your purpose and choose several times in the school year when the topics might lend themselves to a video. This can be an activity or an assessment to be used when needed.

I highly recommend trying videos as learning tools and believe providing the students with the opportunity to create their own will positively impact the student's retention of mathematics. Teaching someone a particular concept is the best way to show that you understand that concept.
The Kennesaw State University Mathematics Competition is an annual mathematics contest open to all Georgia high school students. Unlike contests sponsored by other Georgia Universities, the Kennesaw State University Mathematics Competition is administered to students at their own high school during or after the school day at no cost. In 2012-2013, almost 2000 students from 124 public and private high schools, and homeschool groups competed in round I. Students whose round I scores placed them in the top 10% statewide were invited to compete in round II. Round II consists of five problems each requiring rigorous proof. The students' proofs are scored by a committee of Kennesaw State University mathematics faculty members and graduate students. A sample question from each round appears at the end of this article.

The high school students with the top 34 composite scores from both rounds of the competition were honored at a luncheon reception on the KSU campus on April 20. Partial funding for the KSU Mathematics Competition and the awards reception came from a GCTM Special Projects Grant for $2,050.

David Xing (Northview High School) had the highest composite score in the state and received a plaque and a $100 award. Edward Park (Walton High School) and David Stoner (South Aiken High School, S.C.) placed second and third and received plaques and awards of $50 and $25, respectively.

The following 31 students (in alphabetical order) received plaques of honorable mention.

Porter Adams The Westminster School  Sina Monfared Wheeler High School
Monica Agrawal Chamblee High School  Keiko Mori Walton High School
Udai Baisiwal Walton High School  Jeremy Rachels Rockdale Magnet HS
Josh Brunner Gwinnett HS for Math, Science, & Tech  Edward She Lakeside High School
Benjamin Chen Campbell High School  Ji-Soo Shin McIntosh High School
Ryan Chen Brookwood High School  Farida Tasmim Columbus High School
Ryan Dickmann Columbus High School  Matthew Torrance Woodward Academy
Timothy Gieseking Gwinnett HS for Math, Science, & Tech  Andrew Tsao Chamblee High School
Gil Goldshlager Walton High School  Anirudh Uudutha Wheeler High School
Daniel Gurevich Homeschool  Mark Wang Gwinnett HS for Math, Science, & Tech
Rickie Jang Northview High School  Mike Wang Gwinnett HS for Math, Science, & Tech
Heeyoon Kim Rockdale Magnet HS  Oxford Wang Northview High School
Jea Du Kim Lambert High School  Anchen Yao Parkview High School
Jonathan Li Duluth High School  Du Zhang Darlington School
Michael Liang Northview High School  Catherine Zhu Woodward Academy
Samuel Marks Walton High School

Information and registration materials for the 2013-2014 competition will be mailed to the Mathematics Department Chair at each Georgia high school in early September. If you would like more information about the competition, or would like to register on-line in early September, please visit the contest website.
Kennesaw State Report cont.

Sample Round I question from the 2012-13 contest:

A group of 45 of Harry Potter’s friends at Hogwarts School for Witchcraft and Wizardry were asked which of three subjects they liked: Potions, Herbology, and Defense Against the Dark Arts. Of the 45 students, 80% liked at least one of the three subjects. Twenty of the students liked at least Potions, 25 liked at least Herbology, and 21 liked at least Defense Against the Dark Arts. Twelve of the students liked at least Potions and Herbology, fourteen liked at least Herbology and Defense Against the Dark Arts, and eleven liked at least Potions and Defense Against the Dark Arts. How many of the students liked all three subjects?

(A) 4  
(B) 7  
(C) 9  
(D) 11  
(E) 16

Election Results!

President Elect - Kaycie Maddox  
VP for Regional Services - Karen Lawrence  
VP for Constitution and Policies - Patti Barrett  
Secretary - Debbie Kohler

Did you vote? Tell us about your experience with electronic voting! Contact Tom Ottinger with feedback.
How to Create a Live Binder  by Sharon Morris

The live binder is a way to organize all the websites and/or documents you use on a regular basis. It works just like a notebook you would carry around. It saves you from having to enter the URL for websites or look for the document you need. You simply sign up for an account at Livebinders.com, then you can add tabs and subtabs of information. The easiest way to add a website link is:

1. Name the tab - then a yellow box will come up
2. Minimize the screen
3. Access the website
4. Highlight the URL, right click, copy
5. Pull the live binder back up
6. Right click in the yellow box
7. Paste
   **no actual computer programming needed!**

The process is similar for added files you often use (you may want to add these as subtabs under the tabs you have created). Click Edit which is a yellow box on the left side of the screen, a pop up box comes up at the bottom of the screen, then attach whatever you need just like any other attachment.

When you need anything you just access your live binder which can be added as a link on your opening internet page.

Sharon began teaching on August 10, 1996 in the Special Education department in Hart County at Hart County Middle School as her second career. She taught computer applications for one year and has been in the math department for thirteen years. Sharon earned a Masters of Arts in Secondary Math Education in 1998, and Ed.S degree in Curriculum and Instruction in 2002, both from Piedmont College. She became a National Board certified teacher in 2003 and a Georgia Master Teacher in 2006
Winners of Georgia Science and Engineering Fair

The University of Georgia Center for Continuing Education is announcing the winners of the 65th Georgia Science and Engineering Fair, held March 27 – 29, 2014. GCTM sponsored the special award of Texas Instrument calculators to the 2 winners. We enjoy a partnership with this STEM endeavor as we both recognize the importance of stimulating and encouraging young minds and imaginations.

For more information, contact gsef@georgiacenter.uga.edu.

David Xing, Senior Division  
Billy Porter, Junior Division

Intern Editor of eREFLECTIONS is a job for people who know people and enjoy sharing their knowledge with others. If you are interested, contact Cheryl Hughes for more details.

Intern Volunteer Coordinator for the Georgia Mathematics Conference board (GMC) is a person who is a volunteer at heart and understands how important volunteers are to any organization. This position entails managing people who are willing to help and showing them how valuable they are to our organization.

Conference Board Chair for the 2014 Georgia Mathematics Conference. This position requires that the person has held a position on the GMC board and has leadership and organizational skills. The duties include, but are not limited to, conducting at least 3 quarterly board meetings, coordinating and interacting with various GMC committees, and managing others in accomplishing their tasks in a timely manner.

A volunteer to be Director of Facilities. The duties of this position include, but are not limited to, setting up and storing GMC signage and materials, and managing Rock Eagle facilities before and after the conference.

Intern for Director of Promotions is the person who spends a year learning to plan for and execute the purchase, distribution and sale of promotional items for each year’s GMC in consultation with the Program Chair and Conference Board.

If interested in any of these GMC positions, please contact the current Conference Board Chair, Dr. Kimberly Gardner, at kgardne9@kennesaw.edu.
What Can a Teacher Do this Summer? by Cheryl Hughes, Editor

**TAKE AN ONLINE COURSE! CHECK OUT THESE WEBSITES:**

- keycurriculum - Training
- Mathforum.org

**Read a good book!**

From left:
"Flatterland"
by Ian Stewart,
"Flatland"
by Edwin A. Abbott,
"The Number Devil" by Hans Magnus Enzensberger,
and "Fermat's Enigma" by Simon Singh

**Try some educational apps**

10 of the best Apple and Android apps for education in 2013

**Create some videos to use in your teaching.**

(See the article by Chuck Trader on page 9.)

**Organize your electronic resources using something like LIVE BINDERS.**

(See the article by Sharon Morris on page 12.)

**E is for Explore**

- Fraction Hopscotch
- Concentration

**Top 10 Sites for Creating Digital Comics by David Kapuler**

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