The Summation

The Summation is a publication of the Kansas City Area Teachers of Mathematics (**KCATM**).

A Letter from the KCATM President

—Clare V. Bell, Ph.D.

Happy New Year! We hope you are excited about starting a new year of teaching and learning mathematics with support from the Kansas City Area Teachers of Mathematics.

I am delighted to announce that the editors of *The Summation* will be receiving an NCTM 2014 Publication Award at the NCTM Meeting and Exposition in New Orleans, Louisiana in April. KCATM is an affiliate of the National Council of Teachers of Mathematics (NCTM). Each year, the NCTM Affiliate Services Committee recognizes the outstanding work of NCTM Affiliates in producing excellent journals and newsletters. I will attend the conference as an Affiliate Delegate and receive the award on behalf of the editors, myself and Dr. Sarah Hicks.

The Summation has much to offer KCATM members. Each newsletter contains at least one recreational mathematics activity that may be adapted for use in mathematics classrooms. For example, in this issue, Dr. Rita Barger has provided a brainteaser (**page 2**) and has suggested daily number activities for challenging and entertaining students and KCATM members (**page 3**).

In this issue we also provide ideas for working with students. First, basic information about the upcoming *35ᵗʰ Annual KCATM Math Contest* can be found on pages **4**, **5**, and **6**. Next, as you prepare for the contest, you may find Dr. Barger's "Top 10" ways to motivate students to be helpful (**page 7**). Finally, Dr. Theresa Sulli-

van provides an entertaining account of her visit to the Money Museum of the Federal Reserve Bank of Kansas City (**page 10**). Her trip to MO MATH in New York City occurred last summer on a "beastly hot day." Her recent trip to the Money Museum was during "dangerously cold weather." I am pretty sure that this is coincidental and Dr. Sullivan is not deliberately putting herself in harm's way for the sake of our readers!

See pages **8** and **9** of this issue about funds for classrooms supplies and teacher professional development. KCATM leaders are proud of our organization's record of providing up-to-date information and practical and engaging professional development. Our goal is to work together, with mathematics teachers, to make sense of our complex and rewarding profession.

Wishing you many opportunities for thinking mathematically…

Upcoming **KCATM** Events

- **January 25, 2014** - 3rd Signature Series
- **April 19, 2014** - **Annual Math Contest**

Clare Bell, bellcv@umkc.edu, is an assistant professor in the School of Education at the University of Missouri—Kansas City. Her research interests include the development of self-regulated learning and creating equitable contexts for teaching and learning mathematics and science through classroom discourse and connected classroom technologies.

Brainteaser
My Mind on Math and Math on my Mind

—Rita H. Barger, Ph.D.

Rita Barger, bargerr@umkc.edu, is an associate professor (mathematics education) and chair of the division of Curriculum and Instructional Leadership at the University of Missouri—Kansas City (UMKC). Her interests include recreational mathematics, motivation, professional development, learning styles, and attitudes and beliefs about mathematics.

Previous Brainteaser:

The brain teaser in the last issue of *The Summation* was about "crossing the river." The problem was presented as follows: Three groups need to cross the river. Group A has two members, Alan and Aaron. Group B has three members: Boston, Baron, and Beegee. Group C also has three members: Caron, Crester, and Chad. You need to get all 8 people across the river. However, these stipulations apply:

- Aaron will attack any member of Group B or Group C who is on the same side of the river with him unless Alan is there to stop him.
- Boston will attack Crester or Chad unless Caron is present on the same side of the river.
- Caron will attack Baron or Beegee unless Boston is present on the same side of the river.
- There is a raft that will only support two people at a time as they cross the river.
- Only Alan, Boston, and Caron are able to maneuver the raft.

How can you get everyone safely to the other side of the river without anyone being attacked?

No one sent me the answer to the problem so now I have the challenge of trying to provide you with that answer. I hope you can follow this explanation.

- Alan and Aaron cross the river and Alan returns with the raft.
- Alan crosses the river with Baron, leaves Baron on the far side and returns with Aaron.
- Boston and Beegee cross the river and Boston returns with the raft.
- Boston and Caron cross the river and Caron returns with the raft.
- Alan and Aaron cross the river and Boston returns with the raft.
- Boston and Caron cross the river and Caron returns with the raft.
- Caron and Crester cross the river and Alan and Aaron return on the raft.
- Alan and Chad cross the river and Alan returns with the raft.
- Alan and Aaron cross the river and everyone is safely on the far side.

New Brainteaser:

The new brainteaser is a number puzzle: Use the digits 2, 3, 4, 6, and 8 exactly once each to make a 3-digit number and a 2-digit number so that when you multiply the two numbers, you obtain the largest product. (For example, if you made 234 and 68, the product would be 15,912 which is not the largest possible product.)

Have fun. As always, please send your answers to me at bargerr@umkc.edu. I would like to list names of those who solve the teaser in the next newsletter.

Playing the Daily Numbers
—Rita H. Barger, Ph.D.

Rita Barger, bargerr@umkc.edu, is an associate professor and chair of the division of Curriculum and Instructional Leadership at the University of Missouri—Kansas City (UMKC). Her interests include recreational mathematics, motivation, professional development, learning styles, and attitudes and beliefs about mathematics.

At the conference on November 9, I gave a presentation on using the day's date to develop a climate of thinking about numbers. In addition to celebrating Pi Day (March 14) and Metric Day (October 10), you can find multiple mathematical connections to every day of the year. While there are many possibilities for each day, I decided to provide a "calendar" for February 2014 that will incorporate a variety of number and number theory topics. However, I only provide one possibility for each date. How many more you can generate?

02-01   Double Power of 2 Day (2 to the first and 2 to the zeroth)
02-02   Repeating Day (Month and day are the same)
02-03   Consecutive Numbers Day (02-03)
02-04   Doubles Day (4 is double 2)
02-05   Double Fibonacci Day (Both 2 and 5 appear in the Fibonacci sequence)
02-06   Perfect Day (6 is the first perfect number)
02-07   Multiplication Fact Day (2 x 7 = 14)
02-08   Totally Increasing Day (Each part of the date is larger than the previous part)
02-09   Perfect Square Day (9 is a perfect square)
02-10   Awesomely Even Day (All 3 numbers of the date – including the year – are even numbers)
02-11   A Prime Day (11 is a prime number)
02-12   Addition Fact Day (2 + 12 = 14)
02-13   Double Prime Day (Both 2 and 13 are prime numbers)
02-14   Semi-Prime Day (14 can be written as the product of exactly 2 primes)
02-15   Consecutively Odd Product Day (15 is the product of the consecutive odd numbers 3 and 5)
02-16   Multiple Day (16 is a multiple of 2)
02-17   Proper Day (2/17 written as a fraction is a proper fraction)
02-18   Consecutively Even Sum Day (18 can be written as the sum of the two consecutive even numbers, 8 and 10)
02-19   Simple Day (2/19 written as a fraction is in simplest form)
02-20   Consecutive Product Day (20 is the product of two consecutive numbers, 4 and 5)
02-21   Composite Day (21 is a composite number)
02-22   Complex Day (2/22 written as a fraction can be simplified)
02-23   Triply Relatively Prime Day (All 3 numbers of the date – including the year – are relatively prime, which means that they have no common factors other than 1)
02-24   Abundant Day (24 is an abundant number which means that if you add all the proper factors of 24, the answer is larger than 24)
02-25   Doubly Deficient Day (2 and 25 are both deficient numbers, which means if you add all the proper factors of 25, the answer is smaller than 25)
02-26   Awesome Sum of Consecutive Primes Day (3+5+7+11 = 26)
02-27   A Perfect Cube Day ($27 = 3^3$)
02-28   Perfect Day (28 is the second perfect number, which means if you add all the proper factors of 28 they will equal 28)

35rd Annual KCATM Math Contest
—JoAnn Hiatt

JoAnn Hiatt, jhiattoe@olatheschools.org, is a National Board certified mathematics educator at Olathe East High School. Her passion is providing mathematics experiences for students and teachers beyond the classroom through KCATM.

When: Saturday – April 19th, 2014

Where: Olathe East High School
14545 W. 127th St., Olathe, KS 66062

Contest Coordinator: JoAnn Hiatt, **jhiattoe@olatheschools.org**

Email your school registration forms by April 7, 2014.
NO LATE registrations will be accepted due to the placement of students in testing rooms.

Entry FEES: **$40 per grade per school.** (This includes **ONE free KCATM membership for each school**.)

NEW this year: Students may register without a school sponsor at a cost of **$10 per student**. *(Open registration)*

Contest Times: 4th Grade – 8:15 AM to 9:15 AM   **Awards:** 10:00 AM (Large Auditorium)
                              5th Grade – 9:45 AM to 10:45 AM   11:30 AM (Large Auditorium)

Events: The KCATM Elementary Math Contest is for students in grades 4-5. The student must be in 4th grade to compete in the 4th grade contest, and in 5th grade to complete in the 5th grade contest. The competition is divided into two parts: written exams and a Mathletics team event. Students may be enrolled in **either** the written exams **or** in the Mathletics team event, as these events run simultaneously. *Substitutions may be made the day of the contest.*

***Calculators and pencils are the responsibility of each individual student or school.* NO** *additional scratch paper is permitted on the Mathletics tests.*

Written Tests: Each school may send a **maximum of FOUR students** per grade level to take the written individual tests. Each of the three written tests will be **15-minutes** in length with problem solving woven into the tests. *They will be based on the Common Core curriculum.* The 3 tests are: 1) Numbers and Operations (NO calculator); 2) Geometry and Measurement, and 3) Algebraic Reasoning and Data.

Mathletics Team: Schools may send one team of **exactly three students** to compete in the **team problem-solving contest event**. *(Below-grade students may fill in IF needed.)* If the team does not have 3 students the tests will be scored, but the students will not be awarded medals. Medals will be given to the top 8 Mathletics teams.

Awards Banquet: The **top 3 medalists** in the individual tests, the **top 3 overall** winners for 4th and 5th grade, and the **FIRST PLACE Elementary Mathletics** team members will be recognized at the Annual KCATM Banquet on **May 13, 2014**.

Sponsors: Schools must provide at least one sponsor per participating grade level. The sponsor may be a teacher, parent, or administrator. Each sponsor will work as a test proctor, Mathletics moderator or scorekeeper, or grader *(teachers only)* during the contest. A person may sponsor more than one grade level.

To Register: Complete the registration form **by April 7th**. Fees can be paid the day of the contest **or** mailed to JoAnn Hiatt, 14340 W. 142nd Terrace, Olathe, KS 66062.

Make checks and PO's payable to KCATM. (Please, n*o credit cards.)*

Fax registrations: 913-780-7137; **Email registrations**: **jhiattoe@olatheschools.org**

Please go to the KCATM website for the registration form and more details: **http://www.kcatm.net/**

35rd Annual KCATM Math Contest
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Email your school registration forms by April 7, 2014.
NO LATE registrations will be accepted due to the placement of students in testing rooms.

Entry FEES: **$40 per grade per school.** (This includes **ONE free KCATM membership for each school**.)

NEW this year: Students may register without a school sponsor at a cost of **$10 per student**. *(Open registration)*

Divisions and Student Placement: Students compete in each event by grade level and division.

NEW THIS YEAR: 2 divisions: Grade Level and Advanced

Calculators: Calculators may be used on the last three tests but will not be permitted on the Number Sense test. Students must **furnish their own pencils and calculators. Scientific or graphing calculators (Ex: TI-73, TI-83, TI-84) can be used.** *No Qwerty keypad calculators or TI-Nspire CAS calculators are allowed.*

6th Grade: (All students take ALL exams.)	
8:30-8:50	TEST 1: Number Sense *(NO calculator)*
9:00-9:20	TEST 2: Geometry
9:30-9:50	TEST 3: Statistics and Probability
10:00-10:20	TEST 4: Algebraic Reasoning
11:00	**Mathletics – Main Gym (6th grade team)**

7th AND 8th Grade: (All students take ALL exams.)	
9:30-9:50	TEST 1: Number Sense *(NO calculator)*
10:00-10:20	TEST 2: Geometry
10:30-10:50	TEST 3: Statistics and Probability
11:00-11:20	TEST 4: Algebraic Reasoning and Functions
12:15	**Mathletics – Main Gym**

Awards: The top **eight** individuals in each event in each division will receive medals. **Ties for 1st-8th place will be broken** by the graders starting with question #1 and elimination is based on the student's **first incorrect and 2nd incorrect** response. **NEW this year: Ribbons will be given to students from 9th-20th places with NO ties broken.**

Top 6th, 7th, 8th Graders: One overall winner for each grade level will be determined by total points on the individual tests.

First place students in each individual test and the Top 6th Grader, Top 7th Grader, and Top 8th Grader will be recognized at the Annual KCATM Awards Banquet on **May 13, 2014** at JCCC's Regnier Center. The **TOP Mathletics teams** will also be invited to the 2013 Awards Banquet. ***Sponsors, please pick up the invitation letters in the library***. We hope you and your students will be able to attend this recognition.

Mathletics: Each school may have a maximum of **3 members** on their team. Schools will compete against each other for the **top 3 places**. The top three schools will receive a plaque for their school. No spectator may talk to any team members during competition. Calculators may be used. Scratch paper will be provided.

To Register: Complete the registration form **by April 7th** and email or fax these to JoAnn Hiatt. Fees can be paid the day of the contest. **Make checks and PO's payable to KCATM.** (*Sorry, no credit cards.*)

Fax registrations: 913-780-7137   Email registrations: jhiattoe@olatheschools.org

Please go to the KCATM website for the registration form and more details: **http://www.kcatm.net/**

35rd Annual KCATM Math Contest
—JoAnn Hiatt

JoAnn Hiatt, jhiattoe@olatheschools.org, is a National Board certified mathematics educator at Olathe East High School. Her passion is providing mathematics experiences for students and teachers beyond the classroom through KCATM.

When: Saturday – April 19th, 2014

Where: Olathe East High School; 14545 W. 127th St.; Olathe, KS 66062

Contest Coordinator: Adam Wade, **AWade@bluevalleyk12.org**

Email your school registration forms by April 7, 2014. NO LATE registrations will be accepted.

Entry FEES: **$40 per grade per school.** (This includes **ONE free KCATM membership for each school**.)

NEW this year: Students may register without a school sponsor at a cost of **$10 per student**. *(Open registration)*

ALL schools will compete against each other in ONE Division. **Please limit the number of students to a maximum of ten per grade level.**

Tests: Each exam is 20 minutes, multiple choice. Each **CORRECT** response will earn *4 points.* and each *INCORRECT* response will be a deduction of *1 point*. **Ties will be broken by a random selection of the problems in the grading room.**

Rule Clarifications: Official decisions on any question or procedural matter will be made at the time they arise. These decisions will be made in the grading room. The contest coordinator will communicate the final decision.

Calculators: **NO TI89, TI92, or TI-Nspire-CAS calculators are allowed.** Students using them will be **disqualified** from the event. *Please check your calculators prior to arriving at the contest. It is your responsibility!*

Awards: Medals will be given to the top 5 students in each individual event. The sum of all four individual exams will be used to determine the **Top 9th, 10th, 11th, and 12th graders.**

TEAM Scoring: *Please note the weighting of team events contribute greatly to the team score.*

   Individual events will be scored 8, 5, 3, 2, 1 points for places one through five, respectively.
   Team events will be scored 12, 10, 6, 4, 2 points for places one through five, respectively.

SCHEDULE OF EVENTS   **8:45 Proctors PICK up tests in library and report to the assigned testing room.**

TIME	9th	10th	11th	12th	TEAM TESTS
9:00	Algebraic Equations	Algebraic Equations	Algebraic Equations	Probability & Statistics	After individual tests are finished, each school can create 4 teams for the team tests at 11:15. The testing rooms will be posted. See requirements below.
9:30	Geometry	Geometry	Trigonometry	Trigonometry	
10:00	Word Problems	Word Problems	Word Problems	Word Problems	
10:30	Number Sense	Graphing (calc. req.)	Graphing (calc. req.)	Calculus & Analytical Geo.	
11:15 TEAM TESTS	**ALGEBRA TEAM TEST (9-12)**	**GEOMETRY TEAM TEST (9-12)**	**WORD PROBLEM TEAM TEST (9-12)**	**ADV. MATH TEAM TEST (9-12)**	*Requirements for HS Teams* *Max: 2 seniors* *At least: 1 sophomore OR 1 freshman*
12:15	MATHLETICS (1 team per high school) – Main Gym				
1:15	AWARDS – Main Gym				

Send registrations to JoAnn Hiatt: **Fax**: 913-780-7137   **Email**: **jhiattoe@olatheschools.org**

Please go to the KCATM website for the high school level Mathletics Contest Rules, the registration form, and other details: **http://www.kcatm.net/**

Motivating Students to Learn and Succeed
—Rita H. Barger, Ph.D.

One of the sessions at the KCATM November Conference was on the top 10 ways to motivate students to learn and succeed. As schools, districts, states and the nation have put more and more emphasis on the standards and high stakes testing, I fear that we have taken away much of the enjoyment of mathematics. I talk with teachers who are swimming in required pre-tests, post-tests, benchmarks, curriculum guides, and pacing guides. Over and over again I hear that there's just not enough time to accomplish what needs to be done.

To me, this is a real problem. I don't want to take anything away from curriculum and assessment, but I want to add emphasis to instruction—to encountering the beauty and the fun of mathematics. The following top 10 strategies are interwoven, take minimal time away from the requirements of the district, textbook, and standards, but can go a long way towards re-motivating students to look forward to math class.

10. **Celebrate Wrong Answers.** Yes, correct answers are still important, but there's a lot that can be learned from wrong answers. Investigate the reasoning behind them.

9. **Give Extra Points for Catching Your Mistakes.** Doing this shows your students that it's okay to make mistakes – even the teacher does it. It helps to set up a climate that is safe for taking risks.

8. **Don't Be Fake with Your Praise.** Students can spot fake praise a mile away, and over time they may come to discount comments you make. Instead, give praise when you're truly impressed with something a student says or does. Be excited, but remember that sometimes the praise is even more meaningful when it's given quietly.

7. **Celebrate Accomplishments and Efforts.** Students need time to experience and languish in the limelight. Celebrate accomplishments that are based on extended effort. Celebrate times that everyone passes a test. Celebrate the day that everyone in class had their homework. Celebrate both group and individual accomplishments.

6. **Every Day Is Mathematical.** Play with numbers. See page 3 of this newsletter for examples for February.

5. **Use Games and Puzzles.** Games and Puzzles can teach problem solving, critical and logical thinking.

4. **Give Them Hope.** Too often students feel as though they're not smart enough—especially those who persistently have trouble with basic facts or fractions. Do some research on supplemental teaching strategies, teach to different learning styles, and find a new way to approach teaching those skills that have eluded your students for too long.

3. **Use Dynamic Openings.** Do something quirky or visual or exciting each day that is connected to the lesson you're teaching. You want students to <u>want</u> to come to your class to see what's happening today.

2. **Use Brain Teasers.** Brain teasers can build your students' confidence in their abilities. Students may feel empowered as they see that they can figure out a problem without having to be shown how to do something first.

1. **Have Fun Yourself.** Share some history of mathematics or recreational mathematics; make your room bright and colorful; show things you enjoy.

My experience says that if you practice these strategies, scores on high stakes tests will be just fine.

Rita Barger, bargerr@umkc.edu, is an associate professor (mathematics education) and chair of the division of Curriculum and Instructional Leadership at the University of Missouri—Kansas City (UMKC). Her interests include recreational mathematics, motivation, professional development, learning styles, and attitudes and beliefs about mathematics.

Funds for Your Classroom
—Rita H. Barger, Ph.D.

Rita Barger, bargerr@umkc.edu, is an associate professor (mathematics education) and chair of Curriculum and Instructional Leadership at UMKC. Her interests include recreational mathematics, motivation, professional development, learning styles, and attitudes and beliefs about mathematics.

We all know that districts never have enough money to purchase all the things that teachers need in their classrooms. I read an article recently that said that the average classroom teacher spends more than $400 of his/her personal money on items for the classroom.

The Missouri Council of Teachers of Mathematics (MCTM) offers Missouri teachers up to $750 to spend on classroom needs through its FAME Grants. You do need to be a member of MCTM, but with dues for MCTM being only $25 per year, you could join and then submit a grant proposal. There have been years when MCTM had more money to give in grants than they had applications for grants, so your chances of being funded (if you write a strong proposal) are really good.

The application process is not complicated. According to the MCTM *Bulletin*, here is what you need to know:

Eligibility: Any MCTM member who teaches Pre-K-16 in a Missouri school (public, private, or parochial) may apply.

Statement of Purpose: (3 points) Describe the overall intent of the project in terms of, but not limited to, improvement of skills, enrichment, and/or the development of concepts on the part of students with an overall intent to implement the NCTM Principles and Standards. [Note: Since the Common Core Standards in mathematics were built on NCTM's Principles and Standards, any focus on the Common Core will also meet this requirement.]

Description of Project: (5 points) The description should not exceed two pages, double-spaced. Explain what you intend to do and how you intend to do it. If you are requesting materials, prepare a detailed listing of activities and/or topics to be addressed either in the classroom or in extracurricular projects. Tell how long the project will take in terms of weeks or months. Maximum number of pages allowable for the entire grant is 10.

Assessment: (4 points) The assessment of your project must be clearly stated and related to your goals and description.

Budget: (4 points) The maximum amount of the grant is $750. A detailed list of expenses, which may include supplementary texts, manipulatives, software, or other supplies, must be provided with the application. No funds are allowed for refreshments, substitute teachers, speaking honoraria, purchase of computers, or secretarial help. Copying and postage should not exceed $50.

Evaluation: Winners are expected to submit a brief final written report and complete financial report at the end of the school year in which their grant was awarded. The winners and their school district must also agree that they will present the grant project and the results the following December at the MCTM Fall Conference.

Applications are due March 15, 2014. Grants will be evaluated and recipients notified during the first week of June. All submissions will receive a reply.

If you'd like help with your proposal, or if you have questions, contact me [Rita Barger at bargerr@umkc.edu or 816-235-5655]. You could share information about your project and practice your presentation at our own KCATM Annual Conference prior to the MCTM Conference in December. This is a great way to obtain money for your classroom, gain recognition for yourself and your school, and share and give back to other mathematics teachers. Good luck!!

KCATM members are encouraged to share their ideas, news, and opinions with readers of *The Summation*. Send proposals to Clare Bell **president@kcatm.net** or Sarah Hicks **newsletter@kcatm.net**.

www.kcatm.net

The Summation

Report on the KCATM Annual Conference, November 9, 2013
—Rita H. Barger, Ph.D.

**Framing
the
Practices**

Picture Perfect

On November 9th about a hundred people gathered at the University of Missouri—Kansas City for KCATM's annual conference. Evaluations from the conference have been compiled and participants gave an average rating of 4.6 out of 5 for value from the conference. Attendees provided comments such as:

- Always leave with something I can use
- Overall very informative and useful
- Very interesting morning
- There is a lot that I can walk away with and start using in my classroom right away.

Popular sessions at the conference included IPad/*Tablet Apps for grades K-6*, Bringing *Success to Your ELLs, A New Paradigm for Solving Word Problems*, *Integrating Children's Literature and the Mathematical Practices*, *Motivating Students to Learn and Succeed*, *Operations on Fractions*, *The Attraction to Fractions*, *Hands On Geometry*, *Quality Questioning*, *Flipping the High School Classroom*, *Constant Velocity*, and *Discourse, Tasks, and the Mathematical Practices*.

If you missed attending in 2013, start planning to be with us in 2014. Watch our website (www.kcatm.net) for the date of next year's conference.

Signature Series 2013-2014, final session, January 25, 2014
—Ann McCoy, Ph. D.

Next Generation Assessments

During our winter Signature Series Session we will continue our dialogue with teachers in the Kansas City Area about the changes in mathematics assessments on the horizon. In four grade band sessions, local math education experts will provide multiple strategies for engaging students in mathematical practices that will prepare them to meet expectations outlined in the Common Core State Standards for Mathematics.

Location: UMKC School of Education; 615 E 52nd Street

Cost: $25 for teachers; $10 for pre-service teachers

Register at the KCATM website. http://www.kcatm.net

For more information, contact Dr. Clare Bell (816-235-2482) or Dr. Rita Barger (816-235-5655).

Session	Date	Time
Signature Series, by Grade Band	January 25, 2014	8:30 Registration, 9:00 Session

The Money Museum of the Federal Reserve Bank of Kansas City

A Bitterly Cold Day for a Hot Topic
—Teresa Sullivan, Ph.D.

Teresa Sullivan is a retired computer programming professor who resides in Fairway, Kansas.

The forecast called for dangerously cold weather as I contemplated a visit to the Money Museum of the Federal Reserve Bank of Kansas City. The temperature outside hovered around zero degrees.

The new Federal Reserve Bank is at 1 Memorial Drive, across the street from Penn Valley Park and the World War I Museum. The Money Museum is open from 8:30 a.m. to 4:30 p.m. from Monday to Friday, excluding bank holidays. The parking and admission are free. You must have a valid photo id for admission, if you are over 18 years of age.

My three granddaughters, ages 9, 11 and 13, were fascinated with the museum. There is so much to see and do that you should allow at least two hours for your visit. Our visit began with a video explaining the role of the Federal Reserve Bank in setting monetary policy. There are many engaging activities to keep youngsters busy and interested. They can guess the weight of a bar of gold and can even design their own currency.

The most fascinating part of our visit was watching the robots (Huey, Dewey and Louie) deliver the stacks of bills to the workers at the cash checking machines. The machines sort out old, worn bills and check for counterfeits. One can watch while millions of dollars in currency are being processed. No photos are allowed at this part of the museum.

There is an exhibit on display of over 450 coins from the coin collection of the Harry S Truman Library. Included are coins from every presidential administration in the United States. There are many activities for classes including a Lost Vault Scavenger Hunt for middle school students. Teachers need to arrange ahead to schedule a tour. There are lesson plans available to supplement your visit.

As we departed, we were given a bag of shredded cash as a souvenir. Also, coloring books and other handouts are available for free. It was a great way to spend a day and get in from the cold.

For teachers, you can obtain pre-visit, during visit, and post-visit lesson plans from the museum website. Additionally, the museum offers on-site presentations for all levels of students and student and teacher workshops geared toward the high school level.

http://www.kc.frb.org/moneymuseum/includes/educators.cfm

More information is available at

http://www.frb.org/money museum.

Contributing Your Expertise to Improve Learning for All

♦ **Do you think it is important for teachers to share their expertise so that all students are successful in understanding mathematics?**

♦ **Do you have favorite activities that are particularly engaging for students?**

♦ **Do you know of resources that are useful for supporting the teaching and learning of mathematics?**

♦ **Do you conduct action research in your classroom?**

♦ **Do you document your students' mathematical thinking and engagement in rich mathematical practices?**

♦ **Do you know about great places to visit (e.g., field trips) that stimulate mathematical thinking?**

♦ **Do you ever have the urge to respond to something you have read in this newsletter?**

If you have answered "yes" to any of these questions, then you should be a contributing author to *The Summation*. The editors of *The Summation* would like to share KCATM members' teaching ideas, documentation of successful teaching practices, news, and opinions. Send inquiries, proposals, or manuscripts to Clare Bell president@kcatm.net or Sarah Hicks newsletter@kcatm.net.

KCATM Board Officers

Clare Bell, President, Newsletter Co-Editor
president@kcatm.net

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executivesecretary@kcatm.net

Thomas Sullivan, Treasurer
treasurer@kcatm.net

Sarah Hicks, Newsletter Co-Editor
sarah.hicks@rockhurst.edu

Jo Ann Hiatt, Contest Chair
contest@kcatm.net

Rita Barger, NCTM Representative, Membership Chair, Conference Chair
nctmrepresentative@kcatm.net

Randy Peterson, Publicity
publicity@kcatm.net

Ann McCoy, Signature Series Chair
signatureseries@kcatm.net

Mike Round, Webmaster
web@kcatm.net

Upcoming Board Meetings

To be scheduled soon!

For information about KCATM membership, contact Rita Barger at **bargerr@umkc.edu**.