

# KATM Bulletin

Kansas Association of Teachers of Mathematics

# SAVE THE DATE!!!!!!

February  
2020

## 2020 KATM Annual Mathematics Conference

**September 28,  
2020**

**Shawnee Heights High  
School  
4201 SE Shawnee  
Heights Road  
Tecumseh, KS**



## A Message from our President

Hello and welcome to 2020!

Not everyone has 20-20 vision. I have always worn glasses, and need them to not only read, but also to keep my life in focus. Without my glasses, things are fuzzy; but with my glasses, the world is much clearer.

The same should be true for mathematics teachers. The daily demands of our classes and the students we teach makes attention to today's issues more critical than anything else we do. Our vision needs to be sharp and in focus. We must gaze into the future with a clear focus on what's coming next.

Please consider these ways to help focus your vision in the new year:

- Make plans now to attend the KATM fall conference on Monday, September 28 at Shawnee Height High School in Tecumseh, Kansas.
- Join our KATM Facebook group. Share your ideas, ask a question, post an article, etc. at <https://www.facebook.com/groups/KansasMath/>
- Consider applying for the Cecile Beougher Scholarship (for elementary teachers only) or the Capitol Federal Saving Mathematics Teaching Enhancement Scholarship. You can use the scholarship money for professional development in mathematics, mathematics education, mathematics materials needed in your classroom, or any other improvement of mathematics teaching opportunities.
- Visit the KATM website often (<https://katm.org/>) for new articles.

The arrival of the year 2020 is more than just a catchy phrase; it is a call for us to look toward the year with a clear focus on what we need to do to improve teaching excellence.

Janet Stramel  
KATM President

Dear Kansas Math Teachers,

Hard to believe that spring break is just around the corner. I just finished up my second round of parent/teacher conferences and I'm looking at two more weeks before spring break!

How has your school year been going? What successes have you had? What are your goals for the rest of the school? What are you hoping to try and accomplish over the last 9 weeks of school?

As always, we would love to hear from our members about other what is going on for you! Or, we would love to feature articles and lesson plans from our members if you have an awesome idea you'd like to share! You can email me at [jennywilcox@katm.org](mailto:jennywilcox@katm.org) with any suggestions.

Sincerely,

*Jenny Wilcox* KATM Bulletin Editor

Look for information about upcoming events in your KATM zone!

What's your favorite teaching tip? What burning questions do you have?

Post them to our Facebook page!

The KATM Bulletin needs submissions from K-12 teachers highlighting the mathematical practices listed above. Submissions could be any of the following:

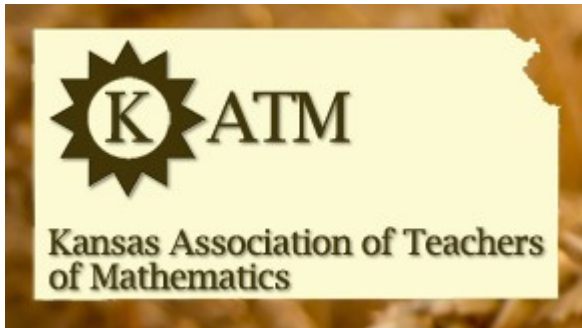
- ◇ Lesson plans
- ◇ Classroom management tips
- ◇ Books reviews
- ◇ Classroom games
- ◇ Reviews of recently adopted resources
- ◇ Good problems for classroom use
- ◇

Email your submissions to our Bulletin editor: [jennywilcox@katm.org](mailto:jennywilcox@katm.org)



[Click here](#) if you're interested in joining in conversation with other Kansas math teachers in our Facebook groups. Invite your friends too!

[Click here](#) to get information about applying for the Capitol Federal or Cecile Beougher scholarship. It is awarded to a KATM member each year! Check out the note and pictures from our recipient from last year on the next page!



[Click here](#) to join KATM! Or let a colleague or friend know about KATM.

Have you considered [applying for one of the KATM scholarships?](#) What could you do for your students???

## A word from our Vice President Elementary

I hope everyone is staying warm. I wanted to share something new I learned in regards to math resources. Our Instructional Facilitator introduced our staff to these two websites. They are great for all ages. The first one is interactive sites for education. They are sorted by subjects and are free. The second site is great for online manipulatives. Both sites were new to me and have been very helpful for lots of students. I thought others might enjoy using these resources as well.

<http://interactivesites.weebly.com/math.html>

### Free Math Apps

These apps are based on the visual models featured in [Bridges in Mathematics](#). All apps are available in two or more versions: a web app for all modern browsers, and downloadable versions for specific operating systems and devices (such as Apple iOS for iPad).



[Open Web App](#)  
[Apple App Store](#)  
[Chrome Store](#)

#### Fractions

The Fractions app lets students use a bar or circle to represent, compare, and perform operations with fractions with denominators from 1 to 100. Choose the fraction model and number of equal parts. Use a color to select specific parts to show a fraction of the whole.



[Open Web App](#)  
[Apple App Store](#)  
[Chrome Store](#)

#### Geoboard

The Geoboard app is a tool for exploring a variety of mathematical topics introduced in the elementary and middle grades. Learners stretch bands around the pegs to form line segments and polygons and make discoveries about perimeter, area, angles, congruence, fractions, and more.



#### Math Clock

Math Clock helps students become fluent working with time. Learners use analog



#### Math Vocabulary Cards

Math Vocabulary Cards help students deepen their conceptual understanding of key terms

<https://www.mathlearningcenter.org/resources/apps>

## Discussion and Modeling Division

Angela Broaddus, PhD

How do you and your students think about division? There are a variety of algorithms and procedures available for division calculations, but do we and our students routinely think about the meaning of the dividend, divisor, and quotient? Consider the examples below.

Each example problem gives a quantity to share – the dividend. Then the problem gives either the number of groups or the number in each group – the divisor. Depending on the meaning of the divisor, the quotient defines either the number in each group or the number of groups, respectively. Students should learn to relate the numbers in a division problem to the problem’s context, including the remainder. In particular, the way the remainder is described should be appropriate for the context. In the example problems, are there remainders? How can you describe them?

Modeling division problems with arrays, strip models, or number lines can support your discussions about division. Each of the examples below uses a different model to illustrate the division problem and solution.

1. There are 21 cookies and you plan to share 3 cookies with each child. How many children can have cookies?

This problem can be represented effectively with an array. Whereas some curricula adhere to particular ways to arrange arrays (e.g., rows for groups), the arrangement is less important than the ways teachers and students describe the meaning of the rows and columns for a particular problem. Therefore, either of the arrays shown below could represent this problem.



*Each column represents one child's cookies.*



*Each row represents one child's cookies.*

Questions that may promote engagement and discussion include:

- What question does the quotient answer: *How many groups?* or *How many in a group?*
- What is a group in this problem?
- How can we draw an array to represent this situation? *Students who cannot mentally compute the quotient can draw groups of three as rows or columns until 21 cookies are shown.*
- How does the array show that there are 21 cookies to share?
- How does the array show that each child gets 3 cookies?
- How does the array show how many children will get cookies?
- Are all the cookies shown in the array?

2. There are 25 cookies to share with 4 children. How many cookies will each child get?

This problem can be represented with an array, but a strip model may be helpful to accommodate the remainder. Cuisenaire rods are a good option for helping students generate strip model drawings from concrete materials. When drawing a strip model, students should mark equal increments to represent each cookie, which should result in equal increments to represent each child's share. Graph paper or dot paper can help students draw accurately.

In this problem students should consider how to describe the leftover cookie. Specifically, they could divide the leftover cookie into fourths and share a fourth of the cookie with each of the 4 children, calling for a fraction interpretation of the remainder. However, they could set the extra cookie aside and not share it among the 4 children, calling for a remainder interpretation of the extra cookie. Students should be aware of both types of interpretations and answer problems in way(s) that make sense in the context of each problem.



Questions that may promote engagement and discussion include:

- What question does the quotient answer: *How many groups?* or *How many in a group?*
- What is a group in this problem?
- How can we draw a strip model to represent this situation?
- Draw a 25 unit long strip.
- Now that we have our strip representing 25 cookies, how can we use the information about the 4 children?
- Subdivide the strip into 4 equal parts with one cookie leftover.
- How does the strip model show that there are 25 cookies to share?
- How does the strip model show the 4 children?
- How does the strip model show how many cookies each child will get?
- Are all the cookies given to children?
- What would you do with the remaining cookie?

3. 8 markers to share among 8 students. How many markers will each student get?

This problem can be represented with an array or strip model but is shown on a number line below. When drawing number lines, students should attend to marking equal distances to represent equal numerical differences. For example, one unit should take the same space whether it is between 0 and 1 or between 10 and 11. Number lines are particularly clear when longer ticks are used for larger yet regular increments or higher place values. For example, the ticks at 0, 10, 20, and 30 can be longer than the ticks for each number between the multiples of 10.

In this problem students should again consider how to describe the leftover markers. Specifically, a fraction interpretation of the remainder in this context would indicate breaking the markers into parts, which does not make sense. Thus, in this situation, it would be more sensible to interpret the number of leftover markers as a remainder.



Questions that may promote engagement and discussion include:

- What question does the quotient answer: *How many groups?* or *How many in a group?*
- What is a group in this problem?
- How can we draw a number line to represent this situation?
- Draw a 28 unit long number line.
- Now that we have drawn a number line showing 28 markers, how can we use the information about the 8 students?
- Subdivide into 8 increments of 3 markers per part with four markers leftover.
- How does the number line show that there are 28 markers to share?
- How does the number line show the 8 students?
- How does the number line show how many markers each student will get?
- Are all the markers given to students?
- What would you do with the remaining markers?

Division provides rich opportunities for students to develop their mathematical reasoning and number sense. When students model division problem and explain the meaning of the numbers in terms of groups and number per group, they deepen their conceptual knowledge of arithmetic operations while improving their numerical fluency as they entertain different ways to compose numbers using multiplicative and additive operations. Furthermore, students can apply or adapt the same ways of thinking about division when they later learn to divide fractions. Tasks and discussions that require students to combine conceptual knowledge, procedural skills, and mathematical models foster meaningful learning and understanding that supports students on their mathematical journey.



## KLFA Update: January 23, 2020



**Leah Fliter** of KASB briefed the group on national and state preparations for Public Schools Week 2020, which is Feb. 24-28. She stated KLFA is among the statewide organizations participating in observances at the Kansas State Capitol on Feb. 26. Activities will include the display of a proclamation by Governor Laura Kelly; House and Senate proclamations honoring Public Schools Week, and displays and demonstrations by KLFA members including KASB, KNEA, the Kansas State Department of Education, and other public education advocates. The group discussed how the attending organizations can utilize the online toolkit found at [this link](#) to support local Public Schools Week activities in their communities. Activities can include school tours for patrons and community leaders, letters to the editor, news releases to local media outlets, and contacts with local legislators. All member organizations and encouraged to fully utilize the free resources found at the link above to advocate for Kansas schools. **If your organization would like to be involved at the February 26<sup>th</sup> event in Topeka contact Leah Fliter at [lfliter@kasb.org](mailto:lfliter@kasb.org).**

**Carol Strickland** of the **National Teachers Hall of Fame** in Emporia gave a [presentation](#) on the Hall's Memorial to Fallen Educators, located on a plaza near the National Teacher Hall of Fame. Strickland described how the organization fund-raised and did research to collect the names of educators (teachers, administrators, bus drivers, aides and others) who have given their lives in service of education. You can read more about the Memorial here: <https://nthfmemorial>. All were encouraged to visit the memorial and museum.

**Patty Jurich** of [Kansas PTA](#) provided information regarding the history of PTA and shared the free resources for school/family collaboration available through their organization. **Cort Buffington** of [KanREN](#) gave a presentation related to the challenge of providing technology infrastructure for teaching and learning across the state and collaborative efforts striving to overcome those challenges.

**Leah Fliter** of KASB and **Mark Desetti** of KNEA gave a legislative update.

**Dayna Richardson** of Learning Forward Kansas facilitated a panel discussion on Teacher Leadership featuring educators from the **Oskaloosa (#341), Topeka (#501), and Inman (USD#448)** school districts as well as other teacher leaders who shared via video-clips. Administrators and teachers discussed how teacher leadership empowers them to do their work and discussed how teacher leadership can look different depending on variables such as district size, location, faculty, staff and community support. The discussion included video clips from KLFA's Inspired to Learn video series, which can be found here: <https://learningforwardkansas.org/inspired-to-learn-video-series-kansas-stories/>.

The next meeting of the **Kansas Learning First Alliance** will be **Thursday, April 9, 2020** at the KNEA building (715 SW 10<sup>th</sup> Ave. in Topeka, KS).

## KATM Officer Nominations

### **VP Elementary Candidate: Dr. Lee Anne Coester**

Dr. Lee Anne Coester taught for 25 years as a K-8 Title I teacher, an elementary classroom teacher, and a middle school math teacher. Then, for the past 20 years she has taught elementary math methods at Washburn University, directed the Math Leadership Institute at ESU and served as a consultant for practicing elementary teachers. She has presented at numerous state and national conferences and has provided inservices and staff development both in Kansas and across the US and Canada as a speaker for the Bureau of Education and Research (BER). Lee Anne has been a member of KATM for over 20 years and was the 2018 winner of KATM's Ray Kurtz award for "exceptional service to our math teaching community." She is passionate about supporting teachers as they discover the best math instructional strategies for their teaching styles and for their diverse classrooms.

### **VP Elementary Candidate: Nikki Meier**

Hello, My name is Nikki Meier. I am currently a Kindergarten teacher in Topeka, KS for Auburn-Washburn USD 437. I have been in education for 22 years, mostly teaching kindergarten. I have also run an afterschool program for K-5, been a presenter and trained other teachers. I have my National Board Certification in Early Childhood and am currently working on my masters of instruction of STEM at Emporia State University. I love developing relationships with my students and families. I am the current VP for Elementary for KATM and have enjoyed the relationships I have had the chance to develop over the past two years. I feel like I have just started to scratch the surface of my understanding of mathematics instruction and would like the opportunity to continue to serve.

## Nominations

### VP High School Candidate: Jancy Dee Radke

I have been teaching math for 14 years. I taught 1 year in Upper Elementary (4-6), 7 years in Middle School (6-8) and the last 6 years have been in High school (Primarily Geometry and Geometry Support). I love learning from others and modifying and adapting new strategies to meet the needs of the students I work with. I teach because I love making a difference in the lives of my students. No matter how bad a day may seem or how exhausted I am when I leave school if I make an impact on even one student it was all worth it!

### VP High School Candidate: Sarah Dolence

I am a first year math teacher at Blue Valley Northwest High School in Overland Park, KS. I recently graduated from the University of Kansas, where I was apart of the UKanTeach program. I believe every student should have the opportunity to meaningfully engage and play with mathematics without the pressure of being labeled by grades. I think I would bring a fresh perspective of new and current teaching trends and practices to KATM. I want Kansas to be the leader of math education in the state and I have ideas of how to serve all teachers to provide meaningful mathematics education to all students.

### President: Will Dunn

I teach students mathematics at the High School level, having taught Algebra 1 through AP Calculus. I am the current Vice President, High School of the KATM Board and am very eager to continue the renewed and dynamic work we have set forth for ourselves these last two years. I am a Jedel Fellow having earned the Exponential Award from the Jedel Excellence in Mathematics Education committee in 2019, and a Noyce Scholar through the National Science Foundation. Additionally, I am a founding member and on the steering committee of the Jayhawk Math Teachers' Circle at the University of Kansas. My areas of professional consultation fall under instructional technique and assessment practices.



UNIVERSITY OF KANSAS DEPARTMENT OF CURRICULUM & TEACHING



**FEATURING ROBERT Q. BERRY, III, PH.D.**

# 2020 Lelon R. Capps Lecture



## Equitable Mathematics Teaching Supportive of Each & Every Learner

In what ways is mathematical discourse connected to equitable mathematics teaching and learning? In this lecture, Berry will address connections between equitable instructional practices and identity, agency, and positionality. A vignette will be used to examine how high cognitively demanding tasks provide opportunities to engage learners in meaningful discourse, positioning learners as mathematically competent.

**5:30 p.m.**  
**Tuesday, March 24**  
**Regnier Auditorium**  
**KU Edwards Campus**

Free & open to the public  
[ctdepartment@ku.edu](mailto:ctdepartment@ku.edu)  
[ct.ku.edu/lelon-capps](http://ct.ku.edu/lelon-capps)

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