

THE NUMBER LINE

January 2017

www.lamath.org



LOUISIANA ASSOCIATION of
TEACHERS of MATHEMATICS

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PRESIDENT'S MESSAGE

At a time when the TIMSS study highlights that 4th grade students' performance has not improved over previous years nationwide, Louisiana's 4th graders had the 2nd highest growth in Mathematics on the National Assessment of Educational Progress (NAEP), also known as "the Nation's Report Card." Let me just say, "Job Well Done, Louisiana Mathematics Educators!"

LATM is dedicated to the promotion of excellence in the teaching and learning of mathematics in Louisiana's schools. Part of that work was accomplished in October at our 2016 Joint Conference, *Cultivating STEM for the Future*. When educators from across the state gathered at the Baton Rouge River Center, we were excited to offer approximately 250 high-quality sessions. (If you are reading this and served as a presenter, please accept my gratitude.) It was our first time to use the Guidebook App for our program, and we heard many folks express how helpful it was. Jean May-Brett served as the Conference Chair and worked tirelessly to coordinate the efforts to pull together a fantastic event. She is to be commended for her work.

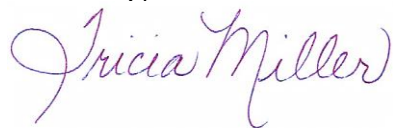
At the conference, we honored several outstanding educators. Information about the awards can be found on our website. The LATM Lifetime Service to Mathematics Education Award recognizes an individual who has dedicated almost all of their adult life towards the advancement of education in mathematics and/or mathematics teaching. Nell McAnelly was our 2016 recipient, and we couldn't be more proud to honor her in this way. Her accomplishments and work are too numerous to mention here, but you can read about them on pages 8-10 of this issue of *The Number Line* and/or on our website, www.lamath.org. Congratulations, Nell!

The LATM Executive Council will be working in 2017 to recruit new members, brainstorm ideas for helping our membership feel more engaged and supported, and plan a fall conference for math educators. Mark your calendars for **November 6-8** to meet us at the **Crowne Plaza Executive Center in Baton Rouge** for our **2017 LATM Conference**.

Don't forget to like us on Facebook and visit our website for the latest information.

Wishing each of you a successful, happy, and productive 2017.

Sincerely,



Tricia Miller
President, Louisiana Association of Teachers of Mathematics

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VICE-PRESIDENTS' CIRCLE

Build Mathematics Understanding with "Read, Draw, Write"

Serena White
Vice-President for Elementary Schools

I have always loved mathematics, and it has come easily to me. In retrospect, I have my dad to thank. My dad was a custom home contractor and in those days he drew his own house plans and he had a small crew he worked with to do his own framing work. Now I see how hanging around my dad's drafting table and construction sites helped my understanding of mathematics tremendously. I experienced fractions by helping dad measure boards. I studied similar and congruent triangles in the rafters I loved to climb. I came to know that the floors were covered by square feet of tile, whereas the baseboards were the perimeter of the room. Later I even learned that there is a ratio for determining a comfortable step in a stairway. And right angles, well, I had been asked to go get dad's square more times than I could count. More importantly, I had seen the drawings of the house before and during its construction, allowing me to understand mathematics in a tangible and conceptual way.

Sixteen years ago, I began teaching my first mathematics class. I was thrilled because the first year teaching I had to take a social studies position because that was all that was open. The next year the principal moved me to 8th grade mathematics. It did not take long at all before I realized that the students I taught did not have the visual library of real-life mathematics to help them understand and solve the problems. I soon began to draw pictures of what I visualized in my mind when I solved problems. The students understood the pictures better than any set of solution steps. So I began to teach them, to read the problem and draw a picture.

Over the years I have seen the following scene many times. One of my student's would read a problem, shake their head, read it again, then pick up the pencil and start to make tentative drawings. After studying what they have drawn, they would begin. "Begin what?" you ask. They would begin to work the mathematics to solve the problem. A problem that they now understood because they had been brave enough to draw a picture.

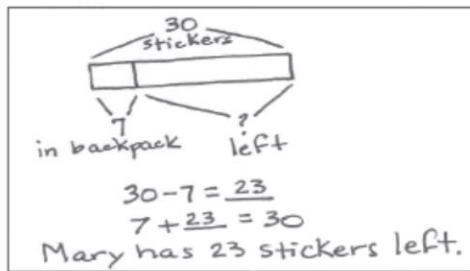
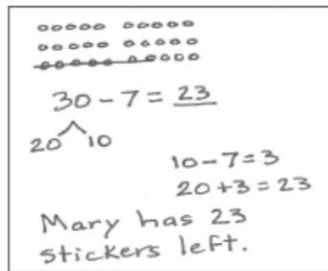
You see the mathematics necessary to solve a problem is not usually apparent, at least not to most students. Understanding of the problem must happen first. There is no better way gain understanding than through sketching a picture. I would argue that a picture sketched by the student actually makes the problem more approachable because they own that representation of the scenario. They understand it because they have recreated it. From that point, knowing what to do to solve the problem comes very naturally.

Read, Draw, Write is a simple yet very powerful strategy used in Eureka Math. It is simply:

1. Read the problem.
2. Draw and label.
3. Write a number sentence (equation) and a sentence (statement).

The following is a sample from Eureka Math, Second grade, Module 1:

Mary buys 30 stickers. She puts 7 in her friend's backpack. How many stickers does Mary have left?



Although I did not create the strategy, "Read, Draw, Write," I have utilized part of this method for years and in all levels of mathematics instruction. It is effective and I am excited that elementary students are being encouraged to engage in this strategy from the beginning of their math journey. As their visual library of math grows, so will their understanding of mathematics.

The Three Act Task

Lori Fanning

Vice-President for High Schools

In an effort to ensure that mathematics instruction is accessible to all students, Dan Myer has developed a strategy that he has called a Three Act Task. In these tasks, Mr. Myer has provided the content standard and mathematical practice standard alignment required by many school districts. His framework for these mathematical tasks provide students with rich mathematical tasks that have many points of entry and accessibility. The tasks not only reach all levels of learners in one course, the tasks also provide a means for the vertical alignment of standards and spiraling of critical concepts for many grade levels. The problems used are "real-world task" that are "messy" and help students to view math as solutions that can be reached from multiple directions. Lastly, many educators believe that the interesting nature of the tasks motivate students to engage in higher levels of thinking and make stronger concept connections for all of the math that they study.


In Act One of the task, a visual is used to engage students in thinking about the mathematics in solving the problem. These visuals require little formal math vocabulary to describe what is happening in the task. Act One encourages a climate of thinking and orients the learning environment to be one of curiosity. In fact, students will pose questions related to the visual, guess correct answers, and verbalize what an incorrect answer would look like. Student questions and curiosity help to generate the need for the mathematical tools to be developed in Act Two.

The primary means of developing mathematical modeling is developed in Act Two. Students should be asking, "what is important here and how would I get it?" Teachers should clarify student questions and emphasize correct mathematical vocabulary related to the tasks. Students return to primary sources to find important information needed to solve the problem. Attending to precision is developed in Act Two as the student overcomes obstacles and develops new tools for problem solving.

In the final act of the Three Act Task, students will formalize their mathematical vocabulary, concepts, and consolidate the mathematical learning while setting up for the sequel or extension task. Students will be shown the answer to the problem to serve as a method of implementing the

mathematical practices of validating conclusions and critiquing the thinking of others. Students will discuss possible sources for error and then account for them with better models. In this act, the “not so nice numbers” are acknowledged as an inherent part of “real math” and their accuracy should be discussed. As a means of reflection, all of the answers to the questions posed by students in Act One should be resolved and revealed. Finally, students should summarize the lesson by creating a “title” that encompasses what they have learned.

An overview of the actions taken by both students and teachers is summarized by **Lisa Englund, NCTM’s Teaching Children Mathematics, June 22, 2015**. It is my hope that you will take this framework and search for examples to implement this instructional strategy. The power in the math is in the “doing”.

	Student View	Teacher View	
Act 1	<ul style="list-style-type: none"> • Visual presentation of a situation, few to no words • Hmm. I’m curious . . . I wonder • I have a guess (I’m involved; I have a stake in getting to the solution). • I’m motivated to learn. (I might not even realize this but it is happening.) • This is different than what we usually do. 	<ul style="list-style-type: none"> • I know the objective of the lesson, but I won’t tell the students where we are headed—I will let the math emerge through the task and then discuss the objective at the end of the activity. • I’ve got them hooked; the motivation is happening without my having to work at it. 😊 	 <p>How long will it take to tank to fill up? Guess as close as you can. Give an answer you know is too high? Too low? What information will you need to know to solve the problem?</p> <p>How long will it take the tank to empty?</p>
Act 2	<ul style="list-style-type: none"> • What information do I need to resolve this? • What tools do I need to resolve this? • I’m working because I really want to know the answer. . . . Hey, I’m WORKING! (and not complaining about it) 	<ul style="list-style-type: none"> • I will help students reason about what information they need, and then I will provide the information that I have prepared for them. • Wow, they’re actually working! 	
Act 3	<ul style="list-style-type: none"> • Am I right? What is the result? I really want to know! • The payoff for the hard work of Act 2 	<ul style="list-style-type: none"> • Resolution, answers • So what did we learn? • Here’s where we discuss the objective of the lesson and the math that we uncovered through the task. • You already have their interest, and they are open to understanding the math. • You have an extension problem ready. 	

Lisa Englund, TCM, June 22, 2015

Teaching Algorithms

Dave Thomas
Vice-President of Colleges

I first heard the term "Teaching Algorithm" from Dr. Stan Chadick, a Professor of Mathematics at Northwestern Louisiana University. I got to know Dr. Chadick when I was an intern at the LaSIP project he was directing one summer for 5th through 8th grade teachers. It was this summer internship that got me involved in teacher education. It taught me the importance of having teachers who are well-versed in mathematical content. I saw the importance of using manipulatives to actively engage students in their learning. And I was introduced to the importance of technology, calculators for example, in the classroom. The simple idea of actively involving students in their own learning has certainly changed the way I teach.

Mathematics is full of algorithms; shortcuts we use to do mathematics. The formula you often see in textbooks for the sum of two fractions is $\frac{a}{b} + \frac{c}{d} = \frac{ab+cd}{bd}$. This is not a teaching algorithm. I

think the most important step in finding the sum of two fractions is getting a common denominator. Although the addition formula above is based on finding a common denominator, the finished version of the formula hides the fact that you have to first find a common denominator. By its very nature an algorithm should make the calculation of a mathematical expression easy, but a teaching algorithm should connect the calculation to the underlying concept being learned. Several summers ago as I was teaching a MSP summer institute for Caddo Parish, I started to rethink this idea of teaching algorithms especially in terms of fractions, which was one of the topics we were covering in the summer institute. Consider the formula or algorithm for fraction division,

invert and multiply. This formula, $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \times \frac{d}{c} = \frac{ad}{bc}$, is the best or at least one of the best mathematical calculation tools ever. It takes a very difficult concept, fraction division, and reduces it to a very simple multiplication problem, i.e. find the product of the numerators and the denominators after the divisor has been inverted. But if you learn fraction division via the algorithm invert and multiply do you really see $\frac{3}{4} \div \frac{1}{2}$ as finding out how many $\frac{1}{2}$'s there are in $\frac{3}{4}$? It is my contention that the answer to the previous question is no. To test this hypothesis, I developed a questionnaire or formative assessment probe, whose instructions and questions are listed below.

For each of the following, evaluate the given expression and then give a real-life word problem that uses the given expression to solve the word problem:

Example:

$$3 + 4 =$$

Nathan has three toy soldiers and Jackson has four pirates. Nathan and Jackson are using their toy figures to fight evil ninja. How many total fighters do they have?

Problem 1:

$$8 \div 2 =$$

Problem 2:

$$2/3 + 1/6 =$$

Problem 3:

$$2/3 \div 1/6 =$$

Results:

An overwhelming number of students were able to evaluate the expression in Problem 1 and 56.3% provided a correct word problem. Some students, 26.5%, gave a word problem that was solved by $\frac{1}{2} \times 8$. Another way to solve a division problem is by saying it is the inverse of multiplication but that normally means $2 \times ? = 8$, not $\frac{1}{2} \times 8 = 4$. For problem 2, 65.1% of the students were able to provide a real-life word problem. But only 50.7% of the students were able to correctly evaluate the mathematical expression. Of the students who gave an incorrect evaluation of the expression, 34.9% calculated the sum as $3/9$. It seems that adding the

numerators to get the new numerator and adding the denominators to get the new denominator is a very common mistake. Finally, for the third problem, 50% (almost exactly the same percentage of students who correctly calculated the fraction sum) performed the correct division, which is a tribute to the usefulness of invert and multiply as a calculation tool. Unfortunately, the number of students who gave a correct word problem was only 9%, which I see as a failure of invert and multiply as a teaching algorithm. The Louisiana Student Standards consistently ask for students to create a story context for a given mathematical expression. In fact, in both the 5th and 6th grade the Louisiana Student Standards specifically ask for story context for mathematical expressions involving fractions. In the next issue I will discuss some possible teaching algorithms for fraction division.

Getting High Schools Students Ready for College

Vickie Flanders
Past Vice-President of Colleges

How well are high school seniors prepared for college? In my experience teaching at the college level, I find that many students are not prepared for college. I am not only speaking about having the academic skill set needed, but I am also speaking about having the correct mindset for a college education. Even a college student who is prepared academically, but who does not possess the right mindset, may not be successful. This article gives high school teachers a couple of useful strategies to help them better prepare their students for the college experience.

The obvious way students need to prepare for their college level math classes is to master the prerequisite algebraic skills. For the most part, high school teachers are mindful of this. They cover the content and go through the objectives for the course. However, sometimes students do not master the objectives, but their overall grade does not represent the mastery level they have attained. Therefore, one of the most important things a high school teacher can do to prepare students for college is to make sure a student's grade is representative of the knowledge in the course. Too many times, I hear students ask for bonus points or extra credit assignments. These are just ways to cushion grades and give students a misunderstanding of what their grade stands for.

Students seldom understand the weighting of grades. They typically have the misunderstanding that if they do well all of their homework, then they will get automatically get a passing grade. Homework is usually online and graded in college math courses, but it usually stands for only 10% - 15% of their overall grade. Someone might think that if students do well on their homework, then this should mean that they understand the content and will make a passing grade on their tests. However, this is not always the case. There are many ways for students to manipulate online homework in order to get a good grade. There are numerous websites that work out problems and give answers for the students. There is no learning taking place when students do this, so these students will likely make a D or F on their tests and quizzes. Since tests and quizzes are weighted very high in a college math course, typically 60% - 65% with the final exam at 25%, the student has no chance of passing a course if they make a D or F on the majority of their quizzes and tests, even though they may have an A or B homework average. For instance, a particular student may have an A in homework, D on quizzes and tests, and they seem to think this averages to a C. They just do not understand the weighting of the categories. Maybe if their high school teachers used weighting of grades, this would help. Also, students typically have the idea that a D is passing, but a C is required for all courses in nearly every program of study (some exceptions do apply).

There is much more learning taking place outside of the college classroom than what a student has had to do outside of a high school classroom. Per college/university academic policy, "A lecture course for which students earns three (3) credit hours includes a minimum of 45 student-instructor

contact hours during the 15-week semester, and students are expected to spend a minimum of six (6) hours weekly, or a total of ninety (90) hours for the semester, on activities outside the classroom to achieve the stated Learning Outcomes for the course.” (BRCC Academic Policy 1.4270) This means that in a typical college course, the student goes to class 3 hours per week and should spend a minimum of 6 hours per week outside of the classroom studying the content in the course. Therefore, students spend a lot less time in a college classroom than they did in a high school classroom and they need to spend more time outside of the classroom studying for a college course than for a high school course. This is a complete academic lifestyle change for students. High school teachers can prepare students for this by having students learn certain concepts with minimal lecture and have them do the bulk of their learning on their own. They will not necessarily like it, but the experience gained will be very valuable.

In conclusion, high school teachers can better prepare students for college by having their course grades configured to be truly representative of a student’s knowledge. High school teachers should make sure the class is taught at a rigor so that students can attain mastery of the prerequisite algebraic skills needed for college level algebra. Also, teachers can pick certain topics and give minimal lecture to help prepare students to spend more time outside of class learning on their own. This experience will be extremely valuable to students.

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2016 LATM Lifetime Service Award Recipient

**Congratulations to
2016 LATM Lifetime Service Award Recipient,
Nell McAnelly**



Presented by: Maryanne Smith, LATM Past President

The Lifetime Service to Mathematics Education Award recognizes a LATM member for distinguished service in the field of mathematics education who made extraordinary contributions to the advancement of education in mathematics and/or mathematics teaching over a significant period of time. The nominee must have been a member of LATM for a minimum of 5 years and also exhibited an excellence of contribution to the LATM organization.

Those are exceptionally high standards that we have set for this award and due to its highly selective nature, we have no expectation that we will present this award each year. As the term

“Lifetime” suggests, we are referring to someone who has dedicated almost all of their adult life towards exemplary work in mathematics education and has now completed or is completing that life’s work.

As I think through other criteria that might be looked at such as:

- Active leadership in mathematics education at local, state, or national level
- Noteworthy scholarly contributions to mathematics education at any level
- Direct and substantial contributions to the improvement of math education at any level and
- Overall excellence of contributions, I realize that few could be said to have done even half of these things. However, our awardee today has accomplished all of the above and so much more!

When our awardee started college, she began to set her course in life as she steered towards a degree in mathematics education. That gave her a solid foundation, and while teaching mathematics and science in high school, she continued her education by attaining a Master’s of Education in Administration and Supervision. At about that time, she started a career of teaching mathematics at the college level that lasted over 30 years.

Our awardee has served as an Associate Director of a center that provides mathematics educational outreach across the state. She has won numerous teaching awards including the BP Amoco Award for Undergraduate Teaching (chosen by peers), George H. Deer Distinguished Teaching Award (chosen by peers), and Tiger Athletic Foundation Junior Division Excellence in Teaching Award (chosen by students).

Her service to mathematics includes local, state, and national levels. Locally she has held membership and offices in Baton Rouge Area Council Teachers of Mathematics (BRACMT). Her time as a member (20+ years) of LATM demonstrates outstanding dedication as she served in many roles. Her leadership on the Executive Council was invaluable, especially when she served as Treasurer. She willingly served on any committee asked of her and performed exemplary work. Our awardee’s leadership in mathematics education extended throughout the state and nation. She has served as Project Investigator and Lead Instructor for numerous LaSIP professional development projects funded through the state of Louisiana. She directed many other state mathematics grants including those for MSP, LaGEAR UP, LRCE, and 8(g). She was also the Executive Director of Quality Science and Mathematics. Many of you may have benefitted from this generous grant source for science and mathematics teachers in the past or may soon receive.

Her most recent grant work has served to change the landscape of mathematics education across our country. She was the Project Director of what is known at the national level as Engage New York. There she guided a national team in the development of challenging K-12 curriculum to support our new rigorous national standards. Today this curriculum is marketed as Eureka Math and is being used across the United States.

Our awardee has been involved in the scholarship of mathematics education on many levels. She has co-authored a LATM Journal column for the past 10 years. While at the college level, she wrote curriculum for math courses including a Number Sense course and Algebraic Thinking course for elementary education majors. In addition to writing and teaching the courses, she mentored numerous faculty who also taught the courses.

I came on the Executive Council of LATM eleven years ago. From my very first day there, I was instantly in awe of this person. Anytime I questioned what I needed to do, I picked up the phone and called her. She was always the most gracious person and gave me moral support and shared

words of wisdom. There were times we would drive and meet halfway to sit and have in-depth discussions about LATM, math standards, reform in mathematics, and other topics.

I am amazed that she would have time to devote to anything else in her life... but she has been able to make it all balance! Family, certainly has always come first. Her husband, Bob has been a constant support for her in all her endeavors... professionally, or otherwise. Her daughters and son were always a source of great joy. She is so proud of her three grandchildren, Caitlyn, Jacob, and Sean. They live in Houston, but she makes time to get there as often as possible. Jim and Kristen have truly blessed her. You only have to ask her once if she has any pictures! Just within the last year, Meghan brought her a son in law, Phil. She was also devoted to her siblings.

We've talked mathematics and family, but there is still more! Our honoree has found time to offer community involvement, as well. She has been active with the Academic Distinction Fund by serving on the Board of Directors, as an officer, and with committee membership and with the Girl Scouts USA at the national level and with the Audubon Girl Scout Council. She served on the ARC of Louisiana Foundation Board, Volunteer Baton Rouge, the Louisiana Arts and Science Center, Best Buddies, and many other organizations. I know that her work in all of these areas also reflected on her work with mathematics. If that weren't enough, she has mentored many educators as they have become outstanding mathematics educators and leaders in the mathematics education community, in their own right.

Is there still time for fun? Certainly, nothing gets in the way of her annual antiquing trip with her friends. She loves to travel... All over the world... Whether with family or friends. And did I mention, she has an affinity for fine wines?

As I was driving over on Sunday... And wondering what I might say, I reflected on an activity that Tricia Miller and I had done at the NCTM Affiliates Leadership conference... We talked about the Qualities of a good leader. As we thought of people we knew who seemed to be exemplary leaders, we wrote down those qualities. In the end, we compared those to *The 21 Indispensable Qualities of a Leader* by John C. Maxwell.

Certainly, when I went through the list, it became evident to me that our awardee today possesses all of these qualities and more. I'm only sharing ten of Mr. Maxwell's qualities with you.

Character - Be a piece of the rock.

Communication - Without it you travel alone.

Competence - If you build it, they will come.

Generosity - Your candle loses nothing when it lights another.

Listening - To connect with their hearts, use your ears.

Passion - Take this life and love it.

Positive Attitude - If you believe you can, you can.

Responsibility - If you won't carry the ball, you can't lead the team.

Teachability - To keep leading, keep learning.

Vision - You can seize only what you can see.

I think these qualities shine through in Nell McAnelly, LATM's 2016 Lifetime Service to Mathematics Education awardee..... don't you all agree?

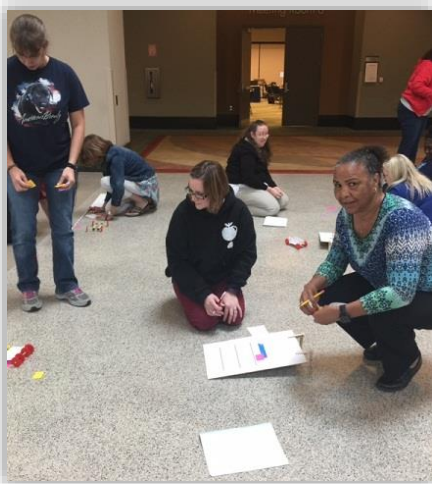
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2016 LATM/LSTA Conference

With well over a thousand attendees, the 2016 LATM/LSTA Joint Conference, *Cultivating STEM for the Future*, was a great success. LATM would like to take the opportunity to thank all those who attended and to invite everyone back to Baton Rouge for the 2017 LATM Conference to be held November 6-8, 2017. Stay tuned to future editions of the *The Number Line* for registration and hotel information. For now, enjoy just a few of the pictures taken during the conference.



Left - LATM Outstanding Teacher Awardees: Tiffany May, Elementary; Louisa Hodges, Math Educator; Amanda Folette, High School; Nikki Martien, New Math Teacher. Center - Bennett Becnell, Outstanding Middle School Teacher Right - PAEMST Awardees and Finalists: Kristen Mason, 2014 Awardee; Donna Patten, 2015 Awardee; 2016 finalists - Ashleigh Jackson, Shannon Southwell, Claudia Suazo.

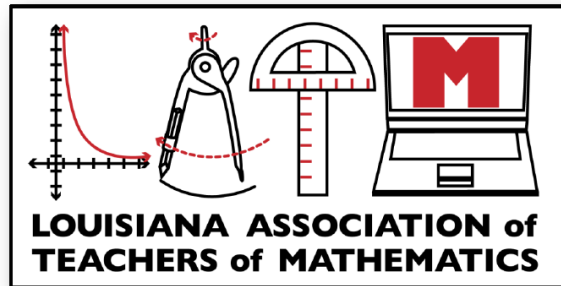


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2017 LATM Conference

Save the Date!

Mark your calendars and plan to attend the **2017 LATM Conference** at the Crowne Plaza Executive Center, Baton Rouge **November 6-8, 2017.**



For more information or to submit a proposal to present, watch for postings on our website:

<http://lamath.org/>

OPPORTUNITIES FOR TEACHERS

2016 LATM Travel Grant Recipients

Congratulations to the 2016 LATM Travel Grant recipients:

Felicia Armand
William Clement
Fan Disher
Leeann LeBouef
Marlise McCarthy
Terri Miller
Angela Mitchell

The Louisiana Association of Teachers of Mathematics is awarded seven travel grants for \$300 each to offset the expense of teachers attending its 2016 LATM/LSTA Joint Math and Science Conference in Baton Rouge. The money could be used to cover conference registration, short course registration, lodging, meals, parking, and/or travel.

Applications for the 2017 Travel Grants will be available in Spring 2017 on the LATM website: <http://lamath.org>.



Presidential Award for Excellence in Mathematics and Science Teaching

Congratulations to Presidential Awardees **Kristen Mason** (2014) of Jefferson Parish and **Donna Patten** (2015) from West Monroe High School. Kristen and Donna traveled to Washington, DC where they were recognized and honored along with the other 2014 and 2015 awardees. LATM was pleased to further recognize these outstanding mathematics educators during the Joint Conference Award Reception held at the Louisiana Arts and Science Museum in October.

Louisiana's mathematics finalists for the 2016 PAEMST were also recognized during the joint conference. The 2016 state finalists are:

Ashleigh Jackson, Greenacres Middle School, Bossier, 6th Grade Mathematics

Claudia Suazo, Metairie Academy for Advanced Studies, Jefferson, 4th Grade Mathematics

Shannon Southwell, Barret Paideia Academy, Caddo, 1st Grade

We plan to hold the state reception for our finalists with their principals and superintendents at the Governor's Mansion this spring. The event was postponed when the August rains flooded the mansion.

The 2016-17 academic year is a secondary cycle for the Presidential Award program. Teachers of mathematics, science, computer and engineering courses in grades 7-12 are eligible for the award in 2017. The nomination process is under way. Several Louisiana teachers of mathematics have been nominated and many have already declared their eligibility and begun work on the application packet. Nominations will be accepted through April 1, 2017 with application packets due May 1, 2017.

Please consider nominating an outstanding secondary mathematics teacher you know. But don't stop with the nomination. Print the certificate of nomination and present it to the teacher. Then periodically check in to encourage and offer assistance to your candidate. You might be able to assist by reviewing the candidate's replies or helping to have the classroom lesson taped and uploaded to the website.

For additional information on the Louisiana PAEMST program contact Jean May-Brett at jam05@bellsouth.net or visit <https://www.paemst.org/home/view>

LATM Outstanding Teacher Award Nominations

Please take advantage of the opportunity to recognize your outstanding colleagues in mathematics education. The Louisiana Association of Teachers of Mathematics honors outstanding elementary, middle, and high school teachers from participating schools each year. We also honor an outstanding new teacher who is in his/her first three years of teaching. This award will go to a teacher who has completed one, two or three years of teaching with the completion of the third year being no later than the end of the 2016-2017 school year. We also honor a Leader in Mathematics educator, which can include supervisors, coaches, lead teachers, university instructors, Department of Education personnel or others who have made a significant contribution to mathematics education (nominees may not be an LATM Executive Council member nor a K-12 classroom teacher). One of the goals of our organization is to honor and recognize those individuals

who model and promote standards-based mathematics teaching and learning for their students. All nominees must be current members of LATM. The membership form can be found at <http://lamath.org> under the membership link.

A copy of the award application can be found at <http://lamath.org> under the awards link beginning February 15, 2017. The nominee should complete all portions of the application and must return them to LATM at the address on the bottom of the application postmarked by April 1, 2017. A panel of outstanding Louisiana educators will evaluate the applications to select finalists and overall awardees for each grade level based on the following criteria: professional experience, professional development activities, professional memberships, reflective essay, and professional references.

LSU-S Math Circle Participants Ready for Spring 2017

Math Circle, hosted monthly by Dr. Judith Covington of LSUS, provides a cost free opportunity for math teachers to participate in a professional development opportunity for educators of different grade levels and varying teaching experience.

Meetings begin at 5 PM with dinner provided. Following dinner teachers are engaged in mathematical conversation through presentations and the exploration of activities. Monthly presenters include university professors from several colleges and teacher leaders from Northwest Louisiana.

For the January meeting David Thomas from Centenary College and the LATM Vice-President for Colleges facilitated a session on the teaching of Fractions. Future meetings for the remainder of this school year will take place on February 7, March 7, April 4 and May 9. Additional details on topics and presenters will be available as the date approaches. Math Circle is free to participants and is a fantastic opportunity to advance mathematical content knowledge. For information contact Judith Covington judith.covington@lsus.edu. Mark your calendars now!

Fund for Teachers Professional Development Grants

Deadline January 31

The Fund for Teachers Grant awards preK-12 teachers with funds to support professional development activities during the summer. Fund for Teachers provides educators, possessing a broad vision of what it means to teach and learn, the resources needed to pursue self-designed professional learning experiences. FFT grants are used for an unlimited variety of projects; all designed to create enhanced learning environments for teachers, their students and their school communities. We believe that supporting teachers' active participation in their own professional growth, positively impacts student learning and achievement. Check the website for complete details <http://www.fundforteachers.org/>.

Full Speed Ahead into STEM

Thursday, March 16, 8:30 a.m. – 3:30 p.m.

Explore how the Navy uses STEM from catapults to switches and everything in between. You will take away EVERYTHING you need to ignite your students learning with real life application of Naval STEM activities learned during this workshop. Due to a Navy Grant, participants receive a supply tub complete with \$100.00 worth of supplies to create the Navy STEM experience for your students.

Registration is currently open through February 23, 2017. Workshop fee is \$50; limited to 25.

NASA Aeronautics: The Science of Flight Workshop

February 23, 9:00 a.m. - 2:30 p.m. CT (30-minute lunch; lunch should be brought or may be purchased at the Infinity Science Center Cafe)

Audience: In-service, pre-service, home school and informal STEM educators of grades 4-8

Location: Infinity Science Center ([Map](#)); Classroom B (upstairs)

NASA puts stock in the importance of active hands-on engineering challenges that provide students the opportunity to create, design, and build experiences with real-life applications. In this workshop you will be provided background information on the science of flight to inspire future scientists, mathematicians and engineers. Explore basic principles of flight, construct aircraft models and use the engineering design process to make these activities educationally challenging. NASA Aeronautics technology will also be introduced. Come see how these inquiry-based lessons will help your students develop concepts, practice data analysis skills, and relate their investigations to real-world applications in NASA Aeronautics research.

Register Online: <https://www.etches.com/219187>

Online pre-registration is required to participate.

Registration will be limited to the first 30 educators.

Registration will close **February 19, 2017** (or when 30 educators are registered).

CEU's/CLU's will be provided for 5.0 hours of attendance.

PBS Digital Innovator

Once again PBS is seeking teachers who are passionate about using digital media and PBS resources to inspire students to learn. The online **PBS Digital Innovator** application is open and the deadline to apply is February 13th at 2 a.m. All applicants will become part of the PBS Education Community. One PBS Digital Innovator will be selected from each state's applicants. The one selected will receive a three-day all-expenses paid trip to San Antonio, TX, June 24-26, for the PBS Digital Innovators Summit and a pass for the first day of the ISTE 2017 Conference & Expo. For [info and the online application](#).

STEM Teaching Tools

[STEM Teaching Tools](#) This site has tools that can help you teach science, technology, engineering and math (STEM). We are currently focused on supporting the teaching of rigorous science standards and three dimensional learning. Each tool is focused on a specific issue and leverages the best knowledge from research and practice.



LATM JOURNAL

LATM Journal Editor Report

The 2016 volume of the LATM Journal will be available online at www.lamath.org at the beginning of February. This volume is unique in that it has reprints of articles from the past ten years of the journal showing how over the years the journal has provided something for all mathematics educators.

Articles are accepted year round for the journal. Articles should be submitted by early summer for possible publication in the 2017 volume. Early submission is encouraged for inclusion as the review process can take two to three months. Submission information can be found at <http://www.lamath.org/journal/LATMJournalSubmissionInformation.pdf>

The Editorial Board is always looking for reviewers. Journal articles typically fall under one of two categories – mathematics-based or mathematics education-based. Sometimes articles blend the two categories. We have been fortunate to have a strong group of about five reviewers who have reviewed article after article for the past few years. If you or any of your colleagues are interested in reviewing, contact the editor or send contact information to the editor.

In addition, remember that the LATM Editorial Board is always looking for guest column writers. Possibly you have an opinion about a current mathematics or mathematics education topic and would like to share that opinion with your fellow LATM members. Contact the editor if you are interested in writing a guest column.

Please remember that this is the LATM Journal and does take LATM one step beyond those affiliates without a journal. Assistance and cooperation from all LATM members can enhance the journal.

If you or anyone has any questions or suggestions about the *LATM Journal*, contact DesLey Plaisance (desley.plaisance@nicholls.edu).

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OPPORTUNITIES FOR STUDENTS

Carol Meyer Scholarship Applications Being Accepted

LATM is pleased to honor the memory of Carol Meyer, an elementary school mathematics teacher who died unexpectedly at an early age. Carol loved mathematics and was a recipient of the Presidential Award for Excellence in Mathematics and Science Teaching. She was an outstanding math teacher and a fervent worker on the LATM executive board. She was always generous in sharing her love of math with her students and fellow teachers.

In Carol's memory, the Louisiana Association of Teachers of Mathematics is pleased to award two \$500.00 scholarships each year to college upperclassmen with a declared major in elementary education, mathematics education, or mathematics. In addition to the scholarship, the awardees shall receive complimentary LATM student memberships. It is our hope that another future outstanding mathematics teacher or mathematician will be helped along the way by this award.

Follow this link for the 2017 application: <http://lamath.org/CarolMeyerScholarship.htm>.

The application must be postmarked by **Friday, March 10, 2017**.

National Youth Science Camp

Applications Open; Deadline March 1

Applications are now open for the 2017 National Youth Science Camp (NYSCamp). This program is for graduating high school seniors in the United States (two from each state and Washington,

D.C.) and students 16-18 years of age in selected other countries. Students can apply at <http://apply.nysc.org>.

NYSC 2017: June 14 - July 8, 2017

For more information about the program, please visit the NYSCamp's web site at <http://www.nysc.org> or email Louisiana Science Teachers' Association (LSTA) President, Nathan Cotten at nathancotten@tpsd.org.

U.S. Super STEM Competition

Interested in having your students compete in an easy and low cost STEM competition? Check us out at www.UnitedStatesSuperSTEMCompetition.org for more info, pictures and how-to videos to help you and your students succeed. STEM teachers in grades five through college can have their students compete to win recognition in any of 15 Divisions. Fifteen divisions to choose from including Architecture, 3D Printing, Robotics, Hydroponics, Sports, Clean Energy, Biomimicry and more. Also see eligibility guidelines for the 2017 Susan Sanford Memorial STEM Scholarship. Online Registration is simple and ends **March 1, 2017**

Essay Contest: Biographies of Contemporary Women in Mathematics

Open to: Students Grades 6-8, Grades 9-12, College Undergraduates

Essay Submission deadline: January 31, 2017

Please share this with students you know!

[Contest Rules](#) [Essay Contest Form](#) [Past Winning Essays](#)

<https://sites.google.com/site/awmmath/programs/essay-contest>

[Printable AWM Essay Contest Flyer >](#)

ABOUT THE CONTEST

To increase awareness of women's ongoing contributions to the mathematical sciences, the Association for Women in Mathematics (AWM) and [Math for America](#) are co-sponsoring an essay contest for biographies of contemporary women mathematicians and statisticians in academic, industrial, and government careers.

The essays will be based primarily on an interview with a woman currently working in a mathematical sciences career. This contest is open to students in the following categories: **Grades 6-8, Grades 9-12, and College Undergraduate**. At least one winning submission will be chosen from each category. Winners will receive a prize, and their essays will be published online at the AWM web site. Additionally, a grand prize winner will have his or her submission published in the AWM Newsletter. **The Deadline for the 2017 AWM Essay Contest is January 31, 2017.**

SEEKING VOLUNTEERS TO BE INTERVIEWED AND/OR HELP WITH JUDGING

We are currently seeking women mathematicians to volunteer as the subjects of these essays, and in January-early March we will need people (male or female, but not current students) to help with the judging. To sign up as a volunteer please fill out the form at <https://www.surveymonkey.com/r/AWMEssay17>. For more information, contact Dr. Heather Lewis, the contest organizer, by email at hlewis5@naz.edu.

Louisiana Young Heroes Awards

LPB and the Rotary Club of Baton Rouge want to honor students who go above and beyond with the 2017 **Louisiana Young Heroes Awards**. **Nominations are being taken now until February**. Students must be enrolled in a Louisiana school (public, private or parochial) or home-schooled, be in grades 7-12, and not older than 19 years of age. Some of our former Young Heroes have overcome physical handicaps, endured emotional hardships, worked tirelessly for charity, cared for family members, assisted hurricane victims, and even saved lives. [Nomination forms](#) can be downloaded and filled out or submitted through the online form. Louisiana Young Heroes Day will be April 10, 2017. For more information, call Margaret Schlaudecker at (800) 272-8161, ext. 4276 or (225) 767-4276 or email heroes@lpb.org.

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LDE UPDATE

Kyle Falting
LDE Representative

The Department has a number of math tools available, each aligned to the Louisiana Student Standards for Mathematics (LSSM). Each resource will equip teachers with a better understanding of the standards and the alignment between the standards and high quality curriculum, allowing teachers to spend more time thinking about the needs of their individual students.

[Focus Documents](#) - With permission from the original creators, we have adapted the national Focus tool to align to the LSSM, helping teachers get a high-level overview of each grade from K-8. This tool allows teachers to see where the majority of their time should be spent as each standard is not considered "equal" in importance, thus not deserving equal time. Clusters of standards are categorized as either Major (green), Supporting (blue), or Additional (yellow). Teachers should spend majority of their time on the Major work of their grade, connecting the Supporting work and, as often as possible, the Additional work to the Major work of the grade. This allows each grade to have a unique focus, thus creating a coherent learning experience for students. Additionally, on the second page of this resource, teachers can find information on culminating standards, grade-level fluencies, and opportunities for coherence within their course. This tool is great for year-long planning and mid-year reflecting, helping teachers prioritize their time to get the biggest return on their investment.

[Rigor Documents](#) - The LSSM were built on a foundation of conceptual understanding, procedural skill and fluency, and application. These three components combine to create a rigorous set of standards and experiences for students at each grade level. Moreover, the three components of rigor give teachers another lens through which to analyze the standards. This document identifies the explicit component(s) of rigor called for by each standard from Kindergarten through Algebra II. Knowing the explicit component of rigor called for by each standard allows for teachers to create assessments aligned to the expectations of the standards, leading to more impactful classroom instruction. This resource can be used on a weekly basis, either individually or in PLCs.

[Louisiana Eureka Guides](#) - Eureka Math is the primary curriculum for nearly 80% of the schools and districts in our state. In this tool, lessons are identified as either appropriate for all students (i.e., on grade level) or appropriate for particular groups of students (i.e., optional for remediation or optional for enrichment). Knowing which lessons are best for all students and which are best

for certain groups of students will allow teachers to strategically plan their year, freeing up more time to spend on grade-level content. This tool should be used frequently for curriculum planning purposes.

To learn more about all of the resources on the [Math Planning Page](#), [access this recorded webinar](#). Furthermore, we would love to hear how these resources are helping you in the classroom and/or how we can improve these resources as most are considered "living" documents. Email louisianastandards@la.gov with feedback. Without your feedback we cannot meet our goal of helping you spend more time thinking about the needs of your individual students.

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AFFILIATE NEWS

Baton Rouge Area Council of Teachers of Mathematics (BRAC TM)

After a successful fall meeting, BRAC TM will once again join forces with the Capital Area Reading Council for a spring meeting focusing on informal assessment techniques to use in your classroom across the curriculum. The meeting will be held in early March with more details to come.

To begin receiving BRAC TM emails by becoming a member, please contact Trisha Fos at bractm@gmail.com.

Northeast Louisiana Teachers of Mathematics (NELATM)

Mark your calendars!! The NELATM will host its annual math mini-conference at Neville High School on Saturday, March 4th. Visit nelatm.org and click on [Mini-Conference](#) for further conference information and a link for [presentation proposals](#). We hope to see you there!!!!

Northwest Louisiana Mathematics Association (NLMA)

The Northwest Louisiana Math Association has an upcoming meeting at the Webster Parish ERC on Clerk Street in Minden. The time and date for the meeting will be provided ASAP. This is a planning meeting to REVIEW THE 2016 Winter Conference evaluations and suggestions to improve future conferences, developing a plan of action to provide professional development and resource support to the teachers in the region. Members are being encouraged to attend and prepare proposals for presenter submissions for the upcoming LATM Conference and asked to save the November dates.

For more information, email: TLPALMS-MOORE@caddoschools.org

SouthEast Area Teachers of Mathematics (SEATM)

On September 13, 2016, SEATM held its fall professional development workshop at Fontainebleau High School in Mandeville, LA. Math teachers from all grade bands attended the event where they were able to discuss the Louisiana Student Standards for Math. Teachers collaborated with their grade-level peers to discuss the new Teacher Companion Documents provided by the state, and how these could be used in planning and assessment development. Many teachers were excited to have this opportunity to work with teachers from other schools.

South West Louisiana Teachers of Mathematics (SWLTM)

SWLTM will hold its annual Spring Mini Conference on Saturday, January 28th from 9:00 a.m. - 1:00 p.m. at Sowela Technical College. In addition, SWLTM will give out a \$750 Classroom Mini-Grant. Teachers may apply for the SWLTM Classroom Mini-Grant by going to the website listed below. You will also find more information regarding the Mini-Conference, like how to submit a proposal and register to attend the conference. <https://sites.google.com/site/swlrm2015/home>

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NCTM UPDATE

Enhance Your Professional Development with NCTM Membership

Resources, research, an extensive network of peers, and exclusive member savings

As a mathematics educator or researcher, your passion is ensuring that all students receive the highest quality math education possible. Membership in NCTM means access to the resources you need to turn your passion into measurable student learning outcomes.

In addition to exclusive resources and the latest research, membership in NCTM connects you to a network of over 60,000 fellow math educators who share your commitment to student success. Enhance your teaching expertise when you exchange solutions and first-hand insights with this extensive network.

By being a member, you are entitled to apply for grants and awards that will give you funding to improve your classroom and your instructional techniques. Every day you can find activities such as Brain-teasers, weekly problems, and teaching strategies that you can implement. You know that the strategies are sound and meet the mathematics standards that your students need for their grade level.

Information is just a click away. NCTM.org offers all the resources you need in one spot, but that's not all. With the presence of social media throughout our lives and world, NCTM is connected through Facebook, Twitter, Instagram, You Tube, and Pinterest. You can network very easily with your colleagues around the country. Information is easy to share and you can enhance learning, not only for your students, but for yourself, as well.

NCTM is excited to offer a featured resource in your grade band this month to help you make the most of your NCTM membership. As they launch their new Classroom Resource Collaboration Center, they'll keep members informed through *Summing Up* and social media. Check out the [#NCTM_CRCC hashtag](#) on Twitter to follow along as they share and discuss these and other NCTM classroom resources.

Sometimes, teachers find mathematics policies questioned. A wonderful source for you as teachers can be found on the website under **NCTM Position Statements**. NCTM position statements define

a particular problem, issue, or need and describe its relevance to mathematics education. These statements address important and timely policy issues relevant to mathematics education. They rest on the foundation provided by Principles and Standards for School Mathematics, Principles to Actions and research, and address issues that extend beyond the classroom. Each one defines the Council's position or answers a question central to the issue. Position statements are approved by the NCTM Board of Directors.

A sampling of such statements include:

- . Access and Equity in Mathematics Education
- . Algebra as a Strand of School Mathematics for All Students
- . Calculator Use in Elementary Grades
- . Procedural Fluency in Mathematics
- . Mathematics in Early Childhood Learning
- . And more! See the full list of NCTM Position Statements.

To find out more about the benefits of membership in NCTM, check out the brochure at: <https://www.nctm.org/uploadedFiles/Membership/indivMemBrochApp.pdf>

Write or Referee for NCTM Publications

The NCTM publishing program looks to the mathematics education community for expertise, insights, and accurate content. Our authors, who include some of the most respected professionals in the field from the classroom, academia, coaching, and administration, develop professional materials for our teachers, administrators, counselors, and parent members. Covering pre-K–14, NCTM publishes approximately 15 books and 5 journals over the course of a year.

Why referee manuscripts? The answer is simple—you always learn something. As a **referee**, you learn something about writing, pedagogy, and mathematics—every single time.

Why write a manuscript? The reasons are many. For example, teachers and other professionals with excellent lessons, assessments, or ideas about classroom research and practice can share them with everyone in the mathematics education community.

Learn about writing or refereeing for NCTM publications [here](#).

Nominations for NCTM Committees

Do you or your colleagues have interests or skills in conferences, publications, research, or one of the many other areas in which NCTM has active committees? Each year, dozens of members join NCTM committees to help advance the Council's mission. The work could not be done without these volunteers.

Committees play important roles in NCTM, including organizing conference programs, researching instructional issues, approving publications to be sold through NCTM's catalog, overseeing NCTM's annual elections, and regularly advising and making recommendations to the Board of Directors on a wide range of issues and topics.

Committee membership reflects NCTM's geographic, cultural, and professional diversity. Terms begin May 1 and typically run for three years. Committees usually meet (with expenses paid for travel and substitute teachers) once or twice each year, at the NCTM Headquarters Office in

Reston, Virginia, and at other locations around the country. Members keep in touch between meetings by phone, fax, and email. Although serving on a committee can involve a lot of hard work, the experience can be valuable not only for the committee member but also for the member's school and community.

NCTM committees cover a wide range of issues and need candidates with relevant expertise and interest. To see if your expertise or interests match the needs of NCTM's committees, please review NCTM's Standing Committees and complete the form titled Volunteer for a Committee.

INSPIRING TEACHERS.	Share the Good Stuff. Refer a Friend to NCTM and Earn Rewards. www.nctm.org/referafriend	
ENGAGING STUDENTS.		
BUILDING THE FUTURE.		

What Do I Get From My Professional Associations?

Maryanne Smith, Past President

Have you ever wondered what benefits there are in membership in professional organizations? Why should I want to be a member of Louisiana Association of Teachers of Mathematics (LATM) or of the National Council of Teachers of Mathematics (NCTM)? Actually, there are many.

You can research types of organizations across all professional job-types and all the literature reads the same, albeit different verbiage. Good professional organizations offer information, advocacy, public relations, expansion of opportunities, and professional development to their membership. Both LATM and NCTM meet that criteria.

You can go to the LATM and NCTM websites and see a multitude of examples of how we meet all of those needs. However, there are some things you may not be aware of that make professional organizations advantageous to you.

Any educator who may write a grant or for an educational award will receive higher marks in the professionalism category, if they show membership in a professional organization that supports the grant or award. Membership demonstrates commitment on the part of the teacher to enhance his/her mathematics teaching.

Membership in LATM and/or NCTM also allows you to apply for grants and awards such as LATM Travel Grants and Outstanding Teacher Awards or the Emerging Teacher Leader Awards and Teacher Professional Development Grants offered by NCTM.

By attending the LATM Conference each year, you automatically receive membership in LATM. Now, go to nctm.org to see all the ways you can benefit from membership in NCTM. For an annual membership around \$80, you get a lot for the money.

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LATM EXECUTIVE COUNCIL

Tricia Miller President tricia.miller@cpsb.org	Maryanne Smith Past President smith70471@yahoo.com	Ellen Daugherty Treasurer edaugh1@lsu.edu
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Renew your Membership

Were you unable to attend the conference in November? Then it's time to renew your membership for 2015-2016 by visiting <http://lamath.org/Membership.htm>. Submit the renewal information online, print the renewal receipt after submitting, and pay with PayPal or mail the renewal receipt with your \$15 payment to the address specified on the receipt. If you have any difficulties with the online form, please contact Beth Smith at bethsmith1124@gmail.com.



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