Texas Association of Supervisors of Mathematics

## TASM Business Meeting 10.22.13

TASM's Purpose: Our objective shall be to assist in promoting effectiveness in supervision, coordination, and teaching of mathematics, especially in the elementary and secondary fields, by holding meetings for the presentation and discussion of papers; by conducting public discussion groups, forums, panels, lectures, or other similar programs; by conducting or promoting investigations for the purpose of improving the teaching of mathematics; and by the publication of papers, journals, books, and reports; thus vitalizing and coordinating the work of mathematics supervisors across Texas and bringing the interests of mathematics to the attention and consideration of the larger educational community in Texas.

## Morning Conversations:

- Welcome \& Goals Janet Dodd
- Minutes \& Email Communication
- Treasurer's Report
- Collaborative Conversations: Teacher Knowledge of 2012 TEKS
- TEA Update: Student Assessment
- TEA Update: Curriculum
- Collaborative Learning: NCSM Position Paper

Paul Gray
Cathy Banks
Janet Dodd
Julie Guthrie
Jo Ann Bilderback
Janet Dodd

Improving Student Achievement by Leading Effective and Collaborative Teams of Mathematics Teachers
Lunch Conversations:

- 2014 CAMT Update
o CAMT Administrators Conference
o CAMT Program
o CAMT Math-a-Rama
o CAMT Board

Susan Hemphill Brenda Aleman
Kay Neuse
Dinah Chancellor
Jennifer Hylemon 2011-2014
Caren Sorrells 2012-2015
Adam Hile 2013-2016

## Afternoon Conversations:

- NCTM Update
- TEA Project Share Updates
- 2014 Elections \& Nominating Committee
- 2014 Tommy Eads Leadership Excellence Award
- Collaborative Learning: Deepening Teacher Content Knowledge
- Future Meetings

Rita Tellez
Paula Moeller
Janet Dodd
Janet Dodd
Janet Dodd
Nicole Shanahan

Future Meeting Dates (Hilton Airport Hotel in Austin, TX)

| 2014 | 2015 |
| :--- | :--- |
| 02.20.14 Spring Professional Development | 02.19.15 Spring Professional Development |
| 02.21.14 Spring Business Meeting | 02.20.15 Spring Business Meeting |
| 07.20.14 CAMT Business Meeting (Ft. Worth) | 06.23.15 CAMT Business Meeting (Houston) |
| 10.20.14 Fall Professional Development | 10.19.15 Fall Professional Development |
| 10.21.14 Fall Business Meeting | 10.20.15 Fall Business Meeting |

- Welcome
- That's Me!
- This is my first TASM meeting!
- l've been attending TASM meetings for at least ten years!
- I'm serving in a new capacity this year!
- I brought one of my campus leaders with me!
- Meet your table colleagues


## Texas Association of Supervisors of Mathematics

- There is one person we are missing ... - Dr. Everly Broadway, TEA Statewide Mathematics Director

"I have stood on the mountain. I've seen the promised land, but I may not get there with you. Keep on marching just the same. There ain't no turning back. It's a one-way track when you jump that freedom train." -Kate Campbell, "Freedom Train."

Norms for Today's Meeting

- Collaborate with table colleagues
- Honor the varying levels of experiences within the group
- Monitor and help minimize distractions
- Honor an attention signal

Secretary: Dr. Paul Gray

- Approval or Correction of Minutes
- Are there any corrections to the minutes as distributed?
- I would like to entertain a motion to approve the minutes.
- Second?
- Any discussion?
- All in favor?
- Any opposed?


## Secretary: Dr. Paul Gray

- TASM's Email Service: Constant Contact


## Are you receiving our TASM emails?

If not, please provide a secondary email address to Paul Gray (TASM Secretary). pgray73@sbcglobal.net

## Treasurer: Cathy Banks <br> - Treasurer's Report

## TASM's Purpose

Our objective shall be to assist in promoting effectiveness in supervision, coordination, and teaching of mathematics, especially in the elementary and secondary fields, by holding meetings for the presentation and discussion of papers; by conducting public discussion groups, forums, panels, lectures, or other similar programs; by conducting or promoting investigations for the purpose of improving the teaching of mathematics; and by the publication of papers, journals, books, and reports; thus vitalizing and coordinating the work of mathematics supervisors across Texas and bringing the interests of mathematics to the attention and consideration of the larger educational community in Texas. (TASM Constitution)

## Texas Association of Supervisors of Mathematics

## Goals: TASM

- Our Organization
- We are many voices ... with one purpose.
- Goal: To bring the interests of mathematics to the attention and consideration of the larger educational community in Texas
- Our Members
- We are diverse in experience, expertise, and needs.
- We have great potential.
- Goal: To collaborate in focused networking and professional learning
- Our Students
- Our students are diverse in experience, expertise, and needs.
- Our students have great potential.
- Goal: To support the growth of teacher leaders


## Texas Association of Supervisors of Mathematics

## Goals: TASM

- As we develop our collective and individual leadership skills ...
- we develop the capacity of teacher leaders.
- As teacher leaders develop their collective and individual leadership skills ...
- we develop the capacity of our students.


## Texas Association of Supervisors of Mathematics

Goals: Today's Meeting

- Engage in collaborative conversations focused on curriculum and assessment
- Engage in collaborative conversations focused on improving the teaching of mathematics


## Collaborative Conversations:

Teacher Knowledge of 2012 TEKS

- What was one of your take-aways from yesterday's professional development?
- How are you utilizing the role in which you serve to develop teachers' knowledge of the 2012 TEKS?

Updates from TEA

- Curriculum Division:

Jo Ann Bilderback
Math/Science Content Specialist

- Student Assessment Division:

Julie Guthrie
Director of Math and Science Assessments

# Collaborative Learning: NCSM Position Paper 

Improving Student Achievement by Leading
Effective and Collaborative Teams of Mathematics Teachers
"...For only when the school house becomes a context for adult development will it become hospitable to student development." Barth (2001, pg. 29)

## LEADERSHIP IN MATHEMATICS EDUCATION INOTIVATE

# Improving Student Achievement by Leading Effective and Collaborative Teams of Mathematics Teachers 

The question for the educator/leader is not whether all humans can learn, but what conditions we can devise so they will learn. For only when the school house becomes a context for adult development will it become hospitable to student development.

Roland Barth
Learning by Heart, 2001, p. 29

## Our Position

It is the position of NCSM that the significant improvement of mathematics teaching and learning requires the creation of structures and practices in every school and district that support and encourage meaningful professional collaboration among teachers. We believe that teacher collaboration should be viewed as a professional obligation for developing the craft knowledge of those closest to the classroom. Key elements of these collaborative teams of teachers should be reflected by a group of teachers who meet regularly as a team to collaboratively:

- Identify essential and valued student curriculum for learning.
- Share teaching strategies and analysis of the effectiveness of those strategies.
- Identify essential and valued student curriculum for learning to include, when possible and appropriate, culturally
situated contexts and connections.
- Set student achievement goals and establish specific benchmarks for student and program improvement.
- Develop common formative and summative assessments and discuss the results, at the test and item levels.
- Use data to analyze current levels of student achievement and provide intervention programs for support.
- Create lessons based on reflective discussions and observations of teacher practice.
- Adjust lesson plans based on student results and collaborative discussions with others.


## The Research that Supports our Position

In many schools, mathematics teaching is regarded as an individual practice. Yet, in the past decade, there has been a consistent and growing body of research confirming the critical importance played by structured teacher collaboration and the removal of teacher isolation (Schmoker, 2005). The right kind of ongoing teacher collaboration improves the quality of teaching, significantly increases student achievement, and pays immediate dividends in the professional development of mathematics teachers and leaders.

In the words of researcher Milbrey McLaughlin,


#### Abstract

It is not often in social science that one finds consistent patterns across time, across settings, in rural, midsize cities, urban ... All had one thing in common. Every single one of them, without exception, belong to some matter of learning community. Not one of them, not one of them, not one of these teachers across states, districts, settings, who was able to engage and sustain these kinds of classrooms, was an isolate ... Teachers were working together in collaborative and collegial teams.


Navigating the Winds of Change<br>NSDC 27 ${ }^{\text {th }}$ Annual Conference, Chicago, 1995

Deal and Peterson (1999) establish that a "better climate for the social and professional exchange of ideas and the spread of effective teaching practices" is a residue of collaborative cultures. Wood's (1991) research verifies that teachers do not learn best in isolation. "The learning that occurs in the classroom as teachers interact with their students must be combined with opportunities for sharing these experiences with other teachers involved in the same process."

This research provides a glimpse into the power of teacher collaboration and team building processes that can be used to "bring an entire mathematics faculty together around meaningful and shared issues about student achievement."

According to DuFour and Eaker (2005), a primary characteristic of a professional learning is collaborative teacher teams. They state:

> A basic structure of a professional learning community is a group of collaborative teacher teams that share a common purpose. Building a school's capacity to learn is a collaborative rather than an individual task. People engaged in collaborative team learning are able to learn from one another, thus creating momentum for continuing improvement.

Fullan (1993) stresses the importance of collaborative teams in Change Forces. "The ability to collaborate - on both a large and small scale - is one of the core requisites of post modern society. ... In short, without collaborative skills and relationships, it is not possible to learn, or continue to learn as much as you need in order to be an agent for social
improvement." The paradigm of teacher collaboration expands the knowledge base of teachers and provides opportunities for active discussions and reflections regarding student learning.

Researcher Judith Warren Little (1990) found that when teachers engage regularly in authentic "joint work" focused on explicit, common learning goals, their collaboration pays off in the form of high quality solutions to instructional problems, increased teacher confidence, and remarkable gains in student achievement.

The image of a grade-level or course-based team of mathematics teachers who meet regularly to share, reflect, and assess the impact of lessons and assessment (testing) strategies has yet to become the norm in most schools. The removal of teacher isolation in daily decision making regarding lesson plans, homework assignments, exam construction, grading practices, and effective teaching strategies is a primary factor in eliminating the inequities created by inconsistent rigor and lowered expectations for student performance by some teachers (Kanold, 2006).

## How NCSM Members can Implement our Position

NCSM members must act to remove the barriers of teacher isolation, create the conditions and structures for teacher grade or course-level collaboration during the normal work day, and establish training for the development of crucial conversation skills among all adults. The powerful collaboration that characterizes a true teacher learning community is a systematic process in which teachers work together to analyze and improve their classroom practice, while also preserving their need for autonomy. More specifically, NCSM members must:

1) Establish high-performing collaborative teacher teams and monitor the work of those teams. They should empower teacher teams to take actions that embody the shared values of the mathematics
program by replacing norms of isolation with norms of collaboration.
2) Make the purpose of the collaboration explicit; work deliberatively to build trust among the mathematics teachers and provide training for the team communication skills necessary to function together successfully.
3) Help each teacher team to identify student achievement gaps in the grade or course level they teach and address the inequities caused by mathematics teacher isolation, privatization, and independent decisionmaking.
4) Radically monitor and celebrate teacher team performance, paying attention to the results in improved student achievement. Encourage discussions of work and successful initiatives to be an ongoing public endeavor.
5) Collaborate with administration and other faculty to support the work and needs of the mathematics teacher teams during the contracted school day. They should provide opportunities for teacher leadership of these teams.
6) Take responsibility for elevating and highlighting mathematics student achievement goals.
7) Provide the current research and best practice evidence of the power of teacher teams to impact student performance.
8) Help teachers learn to acquire culturally responsive pedagogical strategies and infuse, when possible and appropriate, culturally situated contexts and connections specific to the culture and communities of the students they teach and implement them in their instruction.
9) Allow teachers to take responsibility to establish their own student achievement goals.
10) Expect all teachers of mathematics to collaborate in a professional manner with integrity and honesty, using caring and respect.
11) Not tolerate any form of teacher isolation and require all teachers to honor the decisions of the team as it applies to research-based best practices in mathematics curriculum, instruction, and assessment.
12) Mandate that collaborative teams of mathematics teachers design required intervention programs targeted for struggling students early in the progress of each semester of the school year.

Linda Lambert (2003) indicates that teachers will willingly participate in collaborative teams if they find the effort interesting, meaningful, and rewarding to do so. As mathematics education leaders, NCSM members must then create the conditions that help teachers understand the close connection between the daily tasks at hand, the effective use of collaborative team time and the personal values of the participant teachers.

For additional insight into leading effective teams, related to adult learners, and case studies of successful implementation, NCSM recommends the books: Leadership Capacity for Lasting School Improvement (2003) by Linda Lambert; Strengthening the Heartbeat: Leading and Learning Together in Schools (2005) by Thomas Sergiovanni; and Results Now by Mike Schmoker (2006). These are referenced in the bibliography for this paper.

One of a series of position papers of the National Council of Supervisors of Mathematics www.ncsmonline.org
(C) 2007

## Reference List

DuFour, R., Eaker, R. and DuFour, R. (2005). On Common Ground. Bloomington, Indiana: National Education Service.

Deal, T. \& Peterson, K. (1999). Shaping School Culture. San Francisco: Jossey Bass.

Fullan, M. (1993). Change Forces: Probing the Depths of Educational Reform. London: Falmer Press.

Kanold, T. (2006). "The Flywheel Effect." Journal for Staff Development 27 (2), 16-21.

Lambert, L. (2003). Leadership Capacity for Leading School Improvement. Alexandria, Virginia: ASCD.

Little, J.W. (1996). Organizing Schools for Teacher Learning. Paper presented at the AERA Invitational Conference on Teacher Development and School Reform.

Little, J.W. (1990). "Conditions of professional development in secondary schools." In M.W.

McLaughlin, J.E. Talbert, \& N. Bascia (Eds.), The Contexts of Teaching in Secondary Schools: Teachers'Realities. New York: Teachers College Press.

McLaughlin, M. (1995, December). Navigating the Winds of Change. Keynote address presented at the 27th Annual Conference of the National Staff Development Council, Chicago.

Schmoker, M. (2006). Results Now. Alexandria, Virginia: ASCD.

Schmoker, M. "Here and Now: Improving Teaching and Learning," in DuFour, R., Eaker, R. and DuFour, R. (2005). On Common Ground. Bloomington, Indiana: National Education Service.

Sergiovanni, T. (2005). Strengthening the Heartbeat. San Francisco: Jossey Bass.

Wood, T. (1991). "Change in Teaching Mathematics: A Case Study." American Educational Research Journal, 28.

## National Council of Supervisors of Mathematics

## Mission Statement

The National Council of Supervisors of Mathematics (NCSM) is a mathematics leadership organization for educational leaders that provides professional learning opportunities necessary to support and sustain improved student achievement.

## Vision Statement

NCSM envisions a professional and diverse learning community of educational leaders that ensures every student in every classroom has access to effective mathematics teachers, relevant curricula, culturally responsive pedagogy, and current technology.

To achieve our NCSM vision, we will:
N : Network and collaborate with stakeholders in education, business, and government communities to ensure the growth and development of mathematics education leaders
C: Communicate to mathematics leaders current and relevant research, and provide up-to-date information on issues, trends, programs, policies, best practices and technology in mathematics education
S: Support and sustain improved student achievement through the development of leadership skills and relationships among current and future mathematics leaders
M: Motivate mathematics leaders to maintain a life-long commitment to provide equity and access for all learners

Revised July, 2007

## Texas Association of Supervisors of Mathematics

## Collaborative Learning:

- Jigsaw
- A: Page 1
- Our Position and The Research
- B: Page 2
- The Research (continued)
- C: Pages 2-3
- How NCSM and Items 1-5
- D: Page 3
- Items 6-12 and Closing Paragraph


## Texas Association of Supervisors of Mathematics

## Collaborative Learning:

- Debrief
- Jigsaw Summary: What were the "big ideas" in your section?
- Overall: What one idea/comment/point/big idea resonated the most with you? Why?


## Collaborative Learning:

- Looking ahead ...
- 2014 Spring Business Meeting

Key Elements

- Develop common formative and summative assessments and discuss the results, at the test and item levels.
- Use data to analyze current levels of student achievement and provide intervention programs for support.

Bring samples of data analysis tools.

## CAMT Updates:

- Administrators Conference
- Susan Hemphill, Region 13 ESC
- Dr. Brenda Aleman, Crosby ISD
- Program
- Kay Neuse, Plano ISD
- Math-a-Rama
- Dinah Chancellor, Independent Consultant
- Board
- Jennifer Hylemon, Grapevine-Colleyville ISD
- Caren Sorrells, Birdville ISD
- Adam Hile, Klein ISD



## Updates:

Administrator's Conference


## Updates:

## Program



# MATH-A-RAMA 

and

## STEPS



- "Safe environment" for teachers to work together with teammates to plan and deliver short presentations for the annual Texas math conference, CAMT
- Opportunities
-to dig deeply into the math concepts taught at their grade levels
-to determine the qualities of the best math lessons for developing these concepts


## Benefits for Districts

- More professional focus in participating teachers' classrooms
- Confidence \& a renewed sense of responsibility for sharing what they have learned about mathematics with their colleagues
- Professional growth while remaining in the classroom to positively impact students



## Texas Association of Supervisors of Mathematics

$$
\begin{aligned}
& \text { GO FORTH AND } \\
& \text { RECRUIT MATH- } \\
& \text { A-RAMA TEAMM! }
\end{aligned}
$$

Thanks!!
dinahchancellor@gmail.com


## Fort Worth Convention Center

## and

Omni Hotel
Fort Worth, Texas


Omni Hotel

## Fort Worth

 ConventionCenter


Early-Bird Registration \$155 (Feb 1 - May 1)
On Site Registration \$220 (after May 1)


@CAMTTweets
\#CAMT14
f Like CAMT on Facebook!

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NCTM Updates: Rita Tellez

## Texas Association of Supervisors of Mathematics



## Texas Association of Supervisors of Mathematics

## Professional Development Focus of the Year 2013-2014

Number and Operations: Be Radical and Get Real!
Elementary School Resources (coming soon)
Middle School Resources (coming soon)
High School Resources (coming soon)

## Texas Association of Supervisors of Mathematics



## Texas Association of Supervisors of Mathematics

## E-Seminars $\because$ seminars

- One 60-minute online session
- No travel required
- One low rate for an entire group
- Electronic copy of the E-Seminar Handout
- Facilitator Guild


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- Can Writing Be the Missing Link for Mathematical Understanding? (Secondary)

Presenter: Connie Schrock, Emporia State University, Emporia, KS

- Assessment Considerations for RTI in Mathematics (General)

Presenter: David Pugalee, University of North Carolina-Charlotte

- Applying Response to Intervention (RTI) in Mathematics to Support ALL Learners (General)

Presenter: David Pugalee, University of North Carolina at Charlotte

## Texas Association of Supervisors of Mathematics



## Texas Association of Supervisors of Mathematics



Comments on the public draft will be accepted until
October 23, 2013

Website

Principles to Actions

# Are you a member of NCTM? 

When you join or renew, select TASM as your local affiliate.

We receive a $\$ 5$ rebate for each new NCTM membership and a $\$ 3$ rebate for each NCTM membership renewal!

# TEA Project Share: Dr. Paula Moeller 

Director, College Readiness Initiatives
University of Texas at Austin
Institute for Public School Initiatives

Texas Association of Supervisors of Mathematics

@projectshareTX

## Things to know.

- Primary support for Project Share is still occurring at the ESC level
- Additional layers of support are available through statewide support centers
- In an effort to make things easier for teachers, all PD is available through statewide courses

Texas Association of Supervisors of Mathematics

## Student Courses

1-855-683-6727<br>ontrack@ipsi.utexas.edu

for college readiness

Texas Association of Supervisors of Mathematics

## Released in November

-Grade 8
-Algebra I
-Geometry
-Algebra II
for college readiness

## OnTRACK Statewide Courses

- OnTRACK Lessons for Grade 8 Math
http://www.epsilen.com/crs/13194438
- OnTRACK Lessons for Algebra I
http://www.epsilen.com/crs/12156458
- OnTRACK Lessons for Algebra II
http://www.epsilen.com/crs/12157258
- OnTRACK Lessons for Geometry
http://www.epsilen.com/crs/12157141

for college readiness


Facebook
https://www.facebook.com/ipsi.ontrack
or
@OnTRACKTX


## Account Assistance

## 1-855-389-7772

projectsharesupport@ipsi.utexas.edu


## Math PD Support ESTAR/MSTAR Support

1.855.462.8489
mathtx@esc13.net

MSTAR
@mstarTX

## MSTAR Testing Windows

- Fall Window: Through October $18^{\text {th }}$
- If you are in the process of uploading students, you may still access the assessment
- Winter Window: January 8 - February 14, 2014
- Spring Window: April 7 - May 9, 2014 http://mstar.epsilen.com or projectsharetexas.org


## Texas Association of Supervisors of Mathematics

## MSTAR Diagnostic Assessment

- Winter: January 15 - February 21
- Spring: April 14 - May 16

Learn how to use these tools at:
http://www.epsilen.com/crs/13205959

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## TxAIR Support

- txair@esc4.net


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## ELPS PD Support

- elpsTX@esc20.net
@ELPStx



## Texas Association of Supervisors of Mathematics

## Proiect Share Gatewav



TELLIT courses in science are now available! Learn strategies for addressing the affective, cognitive, and lin..
2 days 3 hours ago

Project Share takes Texas educators and students beyond the walls of the traditional classroom and gives them an online environment of educational resources that incorporates the use of today's digital tools. Take a look at our new features.
www.projectsharetexas.org

# PAULA STEFFEN MOELLER, EDD director, COLLEGE READINESS INITIATIVES 

pmoeller@ipsi.utexas.edu
@psmoeller

Other Items: Janet Dodd

- 2014 Elections
- President-Elect
- Vice-President
- Treasurer

Duties of Officers \& Election Procedures can be found in TASM's Constitution http://www.tasmonline.net/index.html

Other Items: Janet Dodd

- 2014 Nominating Committee
- Dr. Brenda Aleman, Crosby ISD
- Tammy Chandler, Frisco ISD
- Karen Marshall, Region 17 ESC
- Nicole Shanahan, Harris County Department of Education (ex-officio)

Duties of the Nominating Committee can be found in TASM's Constitution
http://www.tasmonline.net/index.html

## Texas Association of Supervisors of Mathematics

## Other Items: Janet Dodd <br> - 2014 Tommy Eads Leadership Award

"to annually recognize a current TASM member who has made dedicated and unique contributions to mathematics education"

Nominations can be made online!
http://www.tasmonline.net/index.html

Professional Learning: Janet Dodd Deepening Teacher Content Knowledge

- Do you agree or disagree? Why?
- A teacher's knowledge of mathematics is
linked to how the teacher teaches.
Adding it Up (National Research Council, 2001 pg. 377)

Professional Learning: Janet Dodd
Deepening Teacher Content Knowledge

- Pick a task ...
-As you work, what do you see? what do you hear?
-What is the benefit in engaging teachers with tasks such as these?


### 10.22.13 TASM Business Meeting

In your job as a farmer, you must decide how to use your land for your animals. You fence off 1/2 of your land for your horses. You use $1 / 4$ of the remaining area for your pigs. Then you put your dairy cattle in $1 / 2$ of what is left. The remainder of your land is used for your sheep. What percentage of your land is used for sheep?

When a square piece of paper is folded in half vertically, the resulting rectangle has a perimeter of 39 cm . In square centimeters, determine the area of the original square sheet of paper.

Lara bought a backpack and five binders for \$56.09. Jennifer bought two backpacks and three binders for $\$ 73.96$. Their uncle needs to buy four backpacks and one binder. How much will his purchase cost?

In a circle of radius $r$, two parallel chords of length $r$ form opposite sides of a rectangle. What is the area of the rectangle in terms of $r$ ?


A circular Ferris wheel has a radius of 8 meters and rotates at a rate of 12 degrees per second. At $t=0$, a seat is at its lowest point, which is 2 meters above the ground. Determine how high above the ground the seat is at $t=40$ seconds.

## Professional Learning: Janet Dodd Deepening Teacher Content Knowledge

## Solutions to Tasks

$$
\begin{gathered}
18.75 \% \\
169 \mathrm{~cm}^{2} \\
\$ 120.62 \\
r^{2} \sqrt{3} \\
14 \text { meters }
\end{gathered}
$$

Professional Learning: Janet Dodd Deepening Teacher Content Knowledge
-Why?

- To understand different models, representations, and emerging technologies
- To know what to emphasize and why those ideas are mathematically important
- To anticipate perplexities and help students avoid pitfalls
- To recognize and dispel misconceptions

Developing Essential Understanding of Rational Numbers, Grades 3-5
(NCTM, 2010 pg. vii-viii)

## Texas Association of Supervisors of Mathematics

## Professional Learning: Janet Dodd Deepening Teacher Content Knowledge

- Why?
- To know how to address weaknesses in understanding
- To be able to represent mathematics in different ways
- To know where a topic fits into the mathematics curriculum
- To know where students are coming from and where they are going
Developing Essential Understanding of Rational Numbers, Grades 3-5 (NCTM, 2010 pg. vii-viii)

Professional Learning: Janet Dodd Deepening Teacher Content Knowledge
-Where do we go from here?

- Improving teachers' mathematical knowledge and their capacity to use it to do the work of teaching is crucial in developing students' mathematical proficiency.
Adding it Up (National Research Council, 2001 pg. 372)


## Texas Association of Supervisors of Mathematics

## Future Meetings: Nicole Shanahan

| 2014 | 02.19.15 Spring PD |
| :--- | :--- |
| 02.20.14 Spring PD | O2.20.15 Spring Business Meeting |
| 02.21.14 Spring Business Meeting | O6.23.15 CAMT Business Meeting |
| 07.20.14 CAMT Business Meeting |  |
| (Ft. Worth) | 10.19.15 Fall PD |
| 10.20.14 Fall PD | 10.20.15 Fall Business Meeting |
| 10.21.14 Fall Business Meeting |  |

## Texas Association of Supervisors of Mathematics

Goals: Today's Meeting

- Engage in collaborative conversations focused on curriculum and assessment
- Engage in collaborative conversations focused on improving the teaching of mathematics

