

### A Call to Action for Mathematics Leaders

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### **Leadership For the Common Core State Standards**

It's TIME is intended for leaders, in the broadest sense, working together as Leadership Teams, responsible for moving or influencing individuals and groups towards a common goal of improving mathematics achievement for every student.





# *It's TIME* sets the scenario for an Entrepreneurial Leader

- Passionately serves
- Mavericks who have integrity
- Disciplined risk takers
- Courageous while humble

- Motivated visionary
- Driven while loyal
- Influential learner



### It's TIME .....

- It's TIME we do it right
  - CCSSM, PARCC and SBAC create once in a career opportunities
- It's TIME we use our unity Math Wars are history
- It's TIME we stop settling for mediocrity and programs that fail to serve nearly enough students
- It's TIME we stop making excuses or let others make excuses for not doing what needs to be done
- It's TIME we demand and implement what we know works
- It's TIME we take the action needed to finally make mathematics work for every student in every school



### Our collective givens are clear

There is a new playing field:

- Common Core State Standards
- PARCC
- SBAC

#### Finally:

- Common, clear, coherent guidance (at least for K-8)
- Higher, but appropriate expectations





- Effective, consistent and impactful implementation of the letter and the spirit of the CCSSM
- Significantly higher levels of students achievement in mathematics at the classroom, school, district, state and national levels





### It's TIME to link these givens to these goals with effective leadership around a set of themes and imperatives.

### But How?



### The PRIME Leadership Framework

- Identifies the knowledge and skills needed to lead adults
- ★ Belief in success for every teacher and student
- \* Decisions are data-driven in a collaborative setting
- \* Actions are researched-informed
- ★ This is the "what", not the "how"





### Leaders INFLUENCE others using PRIME

- P Professional Learning Communities Use PRIME as a book study
- R Relationships-Use PRIME to explore successful relationships and leadership skills
- I Influence Use PRIME leadership strategies to explore the CCSSM, assessments, and instructional materials
- M Motivation Use PRIME leadership strategies to motivate mathematics students and specialists
- E Engagement of leaders in conversation with others Use PRIME language for discussion starters



**Complementing PRIME, NCSM presents:** 

- It's TIME: Themes and Imperatives for Mathematics Education
- A Math Leader's To Do List, Field Guide, Game Plan
- A Math Leader's Call to Action
- A Math Leader's Guide to Making a Difference with and through teachers for all students



## It's TIME

- Read it. Read it again.
- Annotate it. Cogitate on it.
- Select some actions and try 'em out.
- Recruit some colleagues.
- Revise and try some things again.
- Build a plan. Implement. Monitor. Revise. Institutionalize.
- Celebrate improvement and success.



### That's the tone we use:

- Clear and Direct there is no time for waffling or beating around the bush
- Honest but without casting blame
- And it leads directly to our Leadership Framework or Theory of Action or Table of Contents that take us from givens to goals



### It's TIME, p.3





#### Overarching Themes Chapter 1

- Social Justice
- Systemic Thoughts and Actions
- Leadership





### **A Working Definition of Equity**

Equity is the ongoing <u>process</u> (not a product) of increasing our own and society's capacity and commitment to:

•Completely <u>respect</u> individuals as complex thinking and feeling humans with <u>different</u> sociocultural, gender, and class backgrounds and values

•Provide the necessary <u>resources</u> to assist people in learning. This includes overcoming the effects of any mistreatment on their ability to learn.

– Becerra et al, Take It Up – Leading for Educational Equity, 2004





# It's TIMEp. 16Social Justice

... (develop an) awareness of the pressing political, health, environmental, economic, and social challenges... (to empower) students to become agents of change on these issues.





#### Call to Action: Rethink the Mathematics Curriculum

Weave social justice issues throughout the curriculum so students will:

- a) Deepen their understanding of society
- b) Become critical thinkers
- c) Use mathematics as a tool to change society
- d) Deepen understanding of racism, social class and gender
- e) Become motivated to learn important mathematics



#### **Vision of Common Core & Social Justice**

 Every student will be college and career ready and, in addition, use mathematics to think critically about community, society, and environment.





### It's TIME, p.3





### **Building on social justice....**

Let's convert these lists and bullets and shorthand titles into a coherent narrative that describes the expectations for every Mathematics Education Leader.



### **Start with the Givens**

- We start with the givens of the guidance of the Common Core and the expectations of a new generation of better aligned, higher quality, more rigorous PARCC and SBAC assessments.
- We recognize that being successful means RAISING ACHIEVEMENT IN MATHEMATICS FOR EVERY STUDENT AND EFFECTIVELY IMPLEMENTING THE CCSSM IN EVERY CLASSROOM.



- We understand that change of this magnitude requires an unwavering commitment to social justice, thinking and acting systemically, and providing strong leadership which are the 3 overarching themes.
- We acknowledge that change must be supported by shifts in beliefs and mindsets, a clear vision of teaching and learning and designated leaders or there is no coherence and only scattered impact from our actions.



### It's TIME, p.3





- Beliefs and Mindsets
  - Shared Vision
    - Designation of Mathematics Leaders







Without clarity about the beliefs and mindsets that support or undermine social justice and a commitment to quality, a program fails under the idiosyncrasies of individuals rather than succeeds due to the collective wisdom of the community. Without a vision, a program is rudderless. Without designated leaders, no one is positioned to assume responsibility for supporting and monitoring the overall success of the program.



So where do we start?

What are non-negotiable elements of improvement?

• Tackle the beliefs and mindsets that guide action and determine willingness and readiness to change (NCTM's new *Principles to Actions*)

• Develop and ensure widespread use of a written, shared vision of effective teaching and learning of mathematics (It's TIME Appendices)

 Identify, designate, deploy, and support mathematics leaders at all necessary levels.

### It's TIME Imperatives

- Mathematics content knowledge
- Pedagogical content knowledge
- Mathematics curriculum knowledge
- Instructional and formative assessment practices
- Instructional materials and resources
- Student support structures and intensification
- Using summative assessment data
- Professional learning
- Collaborative structures
- Coaching





### Mathematics Content Knowledge

To ensure that teachers understand the mathematics content that students are expected to learn, leaders and teams of leaders must:

- Establish an understanding of the scope of mathematics content knowledge
- Support an understanding of the breadth and depth of mathematics content knowledge
- Create opportunities for teachers to identify deficiencies and develop mathematical content knowledge



### Mathematics Content Knowledge

It will be evident that content knowledge has increased when:

- Teachers consistently demonstrate an understanding of mathematics that transcends using rules to get correct answers
- Classroom observations consistently reveal accurate, appropriate, and effective presentation and explanation of the mathematics being taught
- Classroom observations consistently reveal carefully crafted series of questions that elicit and illuminate the mathematics being taught
- Teachers report a range of available opportunities to learn the mathematics content their students are expected to learn



### Pedagogical Content Knowledge

Pedagogical content knowledge is the critical knowledge that links specific mathematics content with effective mathematics instruction. It represents a blend of what content to teach and how best to teach it. More specifically, pedagogical content knowledge includes the following functions.

- Planning functions: Identifying problems and tasks that match skills or expectations and the key mathematical understandings that result from any given problem or task
- Teaching functions: Identifying appropriate explanations, questions, models, approaches, and next steps
- Assessing functions: Understanding student reasoning and effectively dealing with common errors and misconceptions



### Pedagogical Content Knowledge

To ensure effective teaching that incorporates these functions, leaders and teams of leaders should:

- Establish an understanding that content and pedagogy are inseparable components of effective teaching and that mathematics content knowledge is necessary but not sufficient for effectively teaching mathematics
- Support the understanding that there is a body of pedagogical content knowledge for effective instruction that informs the selection of tasks and activities; guides appropriate approaches, models, explanations, and questions; and addresses common errors and misconceptions
- Help educators identify individual and collective pedagogical content knowledge gaps and deficiencies, and then provide diverse opportunities for teachers to learn the necessary pedagogical content knowledge for effective instruction



### Pedagogical Content Knowledge

It will be evident that teachers are building pedagogical content knowledge when:

- They consistently demonstrate that content and pedagogy are inseparable components of effective teaching by teaching through project-based learning, problem applications, and within new situations
- Classroom observations consistently reveal effective and appropriate selection of tasks and activities; approaches, models, explanations, and questions for conveying mathematics; and effective responses to common errors and misconceptions by students
- They report a range of opportunities are available to learn the pedagogical content knowledge they need



### Mathematics Curriculum Knowledge

To ensure an effective mathematics curriculum, leaders and teams of leaders must:

- Ensure teachers understand how and why focus, depth, and coherence make a mathematics curriculum effective
- Develop and deepen understandings of learning progressions of key mathematical topics within a grade and across grades
- Organize the CCSSM content expectations for each grade or course into feasible teaching guides that link content standards, big ideas, and instructional resources
- Create opportunities for teachers to investigate the curriculum at their grade level and across grade levels to fully understand the curriculum they expect students to learn



### Mathematics Curriculum Knowledge

It will be evident that teachers are developing mathematics curriculum knowledge when:

- They consistently plan and implement lessons and units that reflect a coherent focus on important mathematical ideas
- Classroom observations consistently reveal accurate, appropriate, and effective sequencing of the mathematics being taught
- They make consistent and effective use of regularly updated grade-level or course teaching guides
- They report a range of available opportunities to develop an understanding of the mathematics curriculum knowledge that relates to what their students are expected to learn





- See what I mean by handbook, field guide?
- See what I mean by call to action?
- See what I mean by clarifying and guiding insights?

See what I mean by OUR leadership expectations?

See what I mean by the potential value of *It's TIME*?



### **Knowledge is power**

We have just described an immense amount of knowledge.

- But that is what it takes to do the job
- Most teachers do not and cannot arrive with this knowledge
- It's absence helps to explain our underperformance
- It is why high quality materials and resources are so critical
- It is why collaboration and coaching are indispensable
- And it is what our leadership actions must develop



### It's TIME, p.3





### The Heart of the Matter

Imperatives for Instruction, Assessment and Systemic Change

Instructional and formative assessment practices Instructional materials and resources Student support structures and intensification Using summative assessment data **Professional learning Collaborative structures** Coaching



# Instructional and formative assessment practices

To ensure that teachers consistently implement effective, research-affirmed instructional and formative assessment practices in every classroom, <u>leaders and teams of leaders must</u>:

- Provide opportunities for teachers to plan and prepare together
- Provide opportunities for all educators to envision and implement high-quality instructional practices
- Monitor and provide feedback regarding student engagement and learning
- Engage teachers in reflection about instruction and student learning

# Instructional and formative assessment practices

It will be evident that teachers are reflecting on instruction and student learning when students are consistently:

- Engaging actively in the learning process
- Using existing mathematical knowledge to make sense of assigned tasks
- Making connections among mathematical concepts
- Reasoning and making conjectures about a problem
- Communicating their mathematical thinking orally and in writing
- Listening and reacting to others' thinking and solutions to problems
- Using a variety of representations, such as pictures, tables, graphs, and words, for their mathematical thinking
- Using mathematical and technological tools, such as physical materials, calculators, and computers, along with textbooks and other instructional resources



# Instructional materials and resources

To ensure that instructional materials create excitement and motivation, are developmentally appropriate, and support the planning, implementation, and assessment of high-quality lessons, <u>leaders and teams of leaders must</u>:

- Provide access to rich instructional resources
- Guide the selection of instructional resources to create a research-affirmed best practice mathematics learning environment
- Involve teachers in the selection of instructional resources aligned to the CCSSM



# Instructional materials and resources

It will be evident that teachers are involved with selecting instructional resources and are committed to implementation with fidelity when:

- Students are actively engaged in using instructional resources that enhance student learning of mathematics
- Professional learning teams are investigating instructional resources that support curriculum and instruction
- Teachers provide access to and use appropriate resources
- Teachers clearly state the use of the instructional resources in lesson plans
- Teachers use instructional resources to assess student learning
- Teachers use the instructional resources appropriately



# **Student support structures and intensification strategies**

To ensure that multiple intensification strategies are available to support the range of learning needs of struggling students, <u>leaders and teams of leaders must</u>:

- Consider and employ research-based support structures that will best fit the needs of the student population
- Identify students who need additional support, utilizing multiple data sources
- Ensure access to intensified learning
   opportunities for identified students

# Student support structures and intensification strategies

It will be evident that intensification strategies are being used effectively when:

- Schools and districts have a protocol for collecting and analyzing data to identify and assign students to appropriate support structures
- Schools have a comprehensive constellation of support structures based on the anticipated learning needs of struggling students



### Summative assessment data

To ensure an effective use of summative assessment data, <u>leaders and teams of leaders must</u>:

- Analyze the structure and context of summative assessments, and disaggregate the data reflecting performance of subpopulations and content topics as input for instructional planning and improved student learning
- Ensure that teachers understand summative assessments and can interpret the data
- Create opportunities for professional development based on learning gaps the disaggregation of summative assessment data identify



### Summative assessment data

It will be evident that summative assessments are shaping student performance when:

- Teams of teachers collaboratively review summative assessment data and use the data to plan curricular and instructional adjustments
- All summative assessments used to monitor student performance and program effectiveness are tightly aligned with the mathematics content being taught



### **Professional Learning**

To ensure that there are extensive and ongoing opportunities for teachers to enhance their own professional learning and to build their capacity to reach all students, <u>leaders and teams of leaders must:</u>

- Recognize the diversity of skills
- Provide differentiated learning experiences while maintaining an identified focus
- Capture and monitor teacher learning outcomes
- Introduce and reinforce purposefully selected new learning
- Reflect on failures and successes
- Disseminate new learning

### **Professional Learning**

It will be evident that professional learning is effective when:

- Outcomes for professional learning are related to mathematical content knowledge, pedagogical knowledge, and specialized content knowledge
- Peer dialogue and feedback support classroom endeavors
- Collegial sharing of learning experiences occurs inside and outside the school
- All teachers participate in professional learning opportunities
- Teams predicate learning opportunities on what they know from research-affirmed best practices for professional development
- Teachers have data-informed conversations with colleagues about what is working and what is not working in order to ensure that all students are achieving

### **Collaborative Structures**

Administrative teams focus on those priorities that implement the vision of the organization. Academic team leaders support the implementation of instructional practices while working with grade-level or course-specific collaborative teams. These teams collaboratively identify learning targets, plan meaningful lessons that promote student learning, create common assessments, analyze student work, and support each other in making improvements that raise student achievement. Collaborative structures are necessary to create and support changes in schools and districts.



### **Collaborative Structures**

To ensure that there are robust, well-functioning collaborative structures, <u>leaders and teams of leaders must</u>:

- Cultivate a professional culture of transparency, collaboration, and mutual respect within every school and mathematics department
- Ensure that districts or schools establish administrative teams that lead the development, implementation, and monitoring of a vision of teaching and learning throughout the system
- Establish academic leader teams that develop, implement, and monitor the effective teaching practices and district policies that deliver the vision throughout the system
- Establish grade-level or course-specific teacher teams that function as the engines for change in schools and districts



### **Collaborative Structures**

It will be evident that implementation of collaborative structures is happening when:

- All stakeholders know the vision and can articulate it
- Teams discuss assessment results and create action steps to improve student learning
- Student achievement goals are met and reestablished for continued improvement
- Teachers broaden, deepen, and enhance their instructional practices
- Students' level of engagement increases throughout the class period

Teachers request professional learning opportunities

### **Collaborative Structures – p. 51**

Teams of leaders launch, nurture, and support these teacher teams as they:

- Identify and define the learning targets for every unit
- Establish common assessments
- Work collaboratively to incorporate meaningful mathematical tasks that enable students to develop the habits of mind of the Standards for Mathematical Practice
- Provide ample opportunities for students to discuss, collaborate, and collectively build their understanding
- Identify the formative assessments for teachers to use during the lessons
- Plan how to respond when students have not been successful and anticipate providing opportunities for students who have demonstrated mastery early
- Target lesson plans based on students' individual understanding
- Reflect on the unit, based on assessment results, and take appropriate action



### Coaching

To ensure that knowledgeable and trained coaches support instructional improvement and professional collaboration in every school, <u>leaders and teams of leaders must</u>:

- Advocate for the critical role of mathematics coaches
- Define the responsibilities of coaches and protect their opportunities to carry out these responsibilities
- Provide coaches with professional learning opportunities that strengthen mathematical content and pedagogical knowledge while providing appropriate information on gathering, analyzing, and interpreting data
- Deploy coaches strategically in schools, ensuring that the number of schools receiving support is realistic and based on the number of coaches
- Provide opportunities for mathematics coaches to collaborate regularly and share their expertise, experiences, and best practices



### Coaching

It will be evident that mathematics coaches are making a difference when they:

- Work with teachers in and out of the classroom to improve mathematics achievement
- Manage and regulate professional development related to mathematics content and pedagogy
- Manage curriculum and instructional resources
- Monitor implementation of an aligned mathematics curriculum
- Maintain and provide best instructional practice research for teachers
- Build collaborative teams and networks involving teachers, administrators, curriculum coordinators, mathematics specialists, and mathematics coaches



### **Shared Productive Culture**

A strong shared productive culture exists when there is: Commitment to success and to social justice—Leaders must design, implement, and evaluate all components of the K-12 mathematics program to ensure teacher effectiveness and success for all students. In a culture of success with a commitment to social justice, every student will graduate from high school with the procedural and conceptual mathematics knowledge necessary for future workforce training and college academic coursework. Additionally, they will have expertise and confidence to understand and address pressing issues in their community and in the larger world.

### **Shared Productive Culture**

A strong shared productive culture exists when there is:

Accountability—Leaders must hold teachers and other stakeholders accountable to make decisions that support the shared vision of teaching and learning mathematics. Teachers must feel valued and comfortable with peer observations and inquiries into personal practice. In a shared culture of accountability, leaders and teachers recognize personal strengths and weaknesses and embrace the need for continuous improvement and professional learning.

### **Shared Productive Culture**

A strong shared productive culture exists when there is:

<u>Celebration of accomplishments</u>—Leaders must help teachers recognize students for their perseverance and academic success, no matter how small, in learning mathematics. A strong, productive culture celebrates staff innovation and student accomplishment while setting new goals. The school community recognizes and celebrates parents for supporting their children and the school in the pursuit of excellence in mathematics for all students.

From Leaders, To Leaders, For Leaders

## In other words, *It's TIME* provides a detailed **Mathematics Education** Leader's annotated to-do and monitoring list



### NCSM Resources to support It's TIME

### www.mathedleadership.org

New – Crosswalk between PRIME and It's TIME with position papers and other NCSM resources.





and the second		
The PRIME Leadership Framework: Principles and Indicators for Mathematics Leaders (NCSM, 2008)	It's TIME Themes and Imperatives for Mathematics Education: A Leadership Framework for Common Core Mathematics (NCSM, 2014)	NCSM Position Papers Series and other Resources
Equity Leadership	Social Justice and Shared	Improving Student
Every Leader ensures high expectations and access to meaningful mathematics learning for every student.	<b>Productive Culture</b> Accountability Celebration of Accomplishments Success and Commitment to Social Justice <b>Supportive Conditions</b> Shifts in Beliefs and Mindsets Vision Designated Leaders	<ul> <li>Achievement in Mathematics-</li> <li>&gt; by Leading the Pursuit for a Vision of Equity (#3)</li> <li>&gt; for Students with Special Needs (#4)</li> <li>&gt; by Addressing the Needs of English Learners (#6)</li> <li>&gt; by Promoting Positive Self Beliefs (#7)</li> <li>&gt; by Expanding Opportunities for Our Most Promising Students in Mathematics (#9)</li> <li>&gt; by Expanding Learning</li> </ul>

Opportunities for the

### Call to action – As a Leader use All Available NCSM Position Papers

- NCSM Position papers are supporting documents for issues in mathematics education based on research.
  - Our Position
  - Research That Supports Our Position
  - NCSM Leader Actions
  - List of References







### **Coaches Corner - updated**

#### mathematics specialists, coaches, and leaders!

The purpose of the Coaching Corner is to support specialists, coaches, and leaders of coaching programs as they progress through the stages of leadership growth outlined in The PRIME Leadership Framework: Principles and Indicators for Mathematics Education Leaders and the new It's TIME: Themes and Imperatives in Mathematics Education.



MOTIVATE





### **New Feature !!**

## **JUMP START** Formative Assessment

#### **National Council of Supervisors of Mathematics**

## "Overview: JUMP START

#### **Formative Assessment**"

### **The Bottom Line**

Identify a need or a gap. Read the section in *It's TIME*. Select an initiative. Do it. Do it right. Do it more. Do it better. Do it collaboratively. Institutionalize it at high levels of impact. Select another initiative.

### Now It's Your Turn:

- Use this next week as a chance to reflect and plan
- Use this week as a chance to collaborate with like-minded colleagues
- Use this week as a chance to begin your 2014-2015 to-do list
  - Vision? Materials and Resources?
  - Student support? Assessments?
  - Collaborative structures? Coaching?



### It's TIME to LEAD

A Call to Action for Mathematics Leaders August 28, 2014 **Steve Leinwand** Suzanne Mitchell www.mathedleadership.org National Council of Supervisors of Mathematics (NCSM)

