Mathematics Leadership in Times of Unprecedented Change: Catalyzing, Building, and Sustaining Positive Change (Mathematics Education Leaders)

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Who are you?
AGENDA

● Development

● General Recommendations for Math Leaders

● Recommendations for Starting the Year and Positive Strategies for Learning Missed Content

● Communication with Families and Formative Assessment
General Recommendations for Math Leaders

- Ensure a strong focus on high quality mathematics instruction for each and every student, so that we do not perpetuate tracking or ability grouping.
- Advocate for needs of teachers and students, ensuring their voices are heard. Serve as a bridge between administrators and teachers.
- Help teachers plan for/prepare for online teaching and learning, both synchronous and asynchronous
  - Translate good classroom teaching into online strategies—e.g. how to do number talks, how to do 5 practices and Math Teaching Practices, collaborative and cooperative group work
  - Use technology to promote classroom discourse—e.g. using breakout rooms, web-based applications, virtual manipulatives, strategies for asynchronous discussions
- Support teachers in the transition to returning to face to face instruction.
- Work to increase and support teacher collaboration, including in remote contexts if needed.
- Support teachers in implementing a culture of formative assessment and qualitative feedback and acknowledge the challenge of doing so when in remote contexts but providing needed supports to teachers.
- Facilitate or support teachers in effective communication with families.
- Encourage teachers to help students play, explore, and experience the joy, wonder and beauty of mathematics
Recommendations for Starting the Year and Positive Strategies for Learning Missed Content

• Avoid starting the year giving diagnostic assessments; instead, utilize formative assessment strategies.
• Encourage teachers to begin teaching grade-level content and fill in the missed content, in context, along the way.
• Avoid grouping by perceived ability so that we do not fall into de-facto tracking.
• Help teachers develop an increased knowledge of the progressions of key concepts so that prerequisite skills are reviewed directly before building on them rather than teaching missed content in isolation.
• Facilitate vertical collaboration between grade levels to help identify possible areas of additional learning especially when transitioning between and within schools.
• Lead the development of instruction to deeply engage students rather than merely “covering” the content -- students need to engage with mathematical processes and practices to build the mathematical knowledge and identity/agency they need for future success.
• Recommend curricular resources to teachers that support effective learning progressions.
• Help develop effective tier 2 and tier 3 interventions to supplement rather than replace core math instruction.
Go to www.menti.com and use the code 64 08 0

Rate each statement with regard to how challenging it is to accomplish:

- Avoid starting the year giving diagnostic assessments; instead, utilize formative assessment strategies.  
  - Difficulty: Easy

- Encourage teachers to begin teaching grade-level content and fill in the missed content, in context, along the way.
  - Difficulty: Easy

- Help teachers develop an increased knowledge of the progressions of key concepts so that prerequisite skills are reviewed directly before building on.
  - Difficulty: Easy

- Facilitate vertical collaboration between grade levels to help identify possible areas of additional learning.
  - Difficulty: Easy

- Help develop effective tier 2 and tier 3 interventions to supplement rather than replace core math instruction.
  - Difficulty: Easy
Moving Forward: Mathematics Learning in the Era of COVID-19

[Image]

Equity & Access at the Heart

THREE AREAS WITH SERIOUS IMPLICATIONS FOR EQUITABLE ACCESS TO HIGH-QUALITY MATHEMATICS TEACHING AND LEARNING

- **STRUCTURES**: What are the equitable structures that will best support students?
- **TEACHING PRACTICES**: What planning and teaching practices will best support students?
- **ADVOCACY**: How can we humanize mathematics teaching and learning?
Guiding Questions

- Who should be part of which conversations and decisions (teachers, families, school level leaders, students, or other partners and stakeholders)?
- What supports are necessary for educators to thoughtfully engage learners in meaningful learning of mathematics when students, teachers, and leaders move forward with learning?
- What questions do we need to ask before taking next steps?
Equitable Structures Supporting Mathematics Teaching and Learning

- Attention to teachers’ and learners’ social, emotional, and academic needs
- Bold Leadership that Considers Impact on lives
- Interruptions in learning resulting from COVID-19 have the potential to exacerbate inequities
Productive Structures that Support Teachers

- Recognize the strengths that teachers bring
- Provide space for professional collaboration
- Types of teaching assignments: Looping, team teaching, co-teaching
- Create vertical teams for planning
- Provide teachers with professional learning
- Establish clear, robust yet reasonable expectations for teachers and students for addressing learning needs
Effective Equitable Teaching Practices

• Attention must be given to the social and emotional needs of students, teachers, and staff

• Determining
  – Essential Learning for All Students
  – Necessary Prior Knowledge
  – What Students Know

• Intentional about selecting and using formative assessments strategies
8 Effective Teaching Practices

*NCTM’s Principles to Actions*, 2014

- Establish mathematical goals to focus learning.
- Implement tasks that promote reasoning and problem solving.
- Use and connect mathematical representations.
- Facilitate meaningful mathematical discourse.
- Pose purposeful questions.
- Build procedural fluency from conceptual understanding.
- Support productive struggle in learning mathematics.
- Elicit and use evidence of student thinking.
Advocating for Teachers, Students
Humanizing the Development & Implementation of Education Policies & Practices

• Policy and Budget

• Assessment Practices
  – Waive, eliminate, or postpone state, provincial, or district assessments
  – All district-level assessments should be carefully reviewed
  – Support and protect time for teacher collaborations around formative assessment tasks and problems
What should we consider when making decisions about professional learning and collaboration?

- Create a culture where professional learning and increasing teacher capacity are priorities.
- Prioritize time and value teacher collaboration.
- Integrate the use of tools and technology that further the visualization, modeling, and sense making in mathematics.
- Increase transparency.
Recommendations for advocacy

- Use a **strengths-based** approach (Kobett and Karp 2020).
- Provide and protect access to **rigorous and engaging instruction**, learning, and support for each and every student.
- Build and sustain a **positive identity and disposition** toward mathematics for all teachers and students.
- Ensure that we are **increasing**, not decreasing, **opportunities** for each and every student.
- **Communicate** with, engage with, and support our families and community.
Reflecting on *Moving Forward*

What areas or ideas do you want to focus on in your role as a mathematics education leader?

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Enter one word at a time or you can use a hyphen for multiple words
You can enter up to three at a time and can submit multiple times
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What areas or ideas do you want to focus on in your role as a mathematics education leader?
Let’s Move Forward Together

Moving Forward: Mathematics Learning in the Era of COVID-19
Help Teachers to Focus on Student Strengths

• Avoid Deficit Models

• Engage Prior Understanding

• Focus on Reasoning & Sense Making
Focus on High Quality Mathematics Instruction

• High Cognitive Demand Tasks
• Place Mathematics in Context
• Promote Meaningful Discourse
What does it mean to be “good in math”?
What does it mean to be “good in math”? 
Support Teachers to Develop Student’s Dispositions

• Defining Mathematics

• Meaningful/Worthwhile Task

• Joy and Beauty of Mathematics
Recommendations for Starting the Year and Positive Strategies for Learning Missed Content

Teachers need your support.

Administrators need your advice.
• Encourage teachers to begin teaching grade-level content and fill in the missed content, in context, along the way.
  • Design rich tier 1 instruction accessible for all students
  • Identify essential skills
  • Help teachers develop an increased knowledge of the progressions of key concepts so that prerequisite skills are reviewed and developed as part of the lesson rather than teaching missed content in isolation
  • Recommend curricular resources to teachers that support effective learning progressions.
Guides for Focus Content and Learning

Progressions

**Curriculum Focal Points**
Prekindergarten - Grade 8

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2020-2021 PRIORITY INSTRUCTIONAL CONTENT
IN ELA/LITERACY AND MATHEMATICS

NCTM provided feedback for this guide.

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The Math Pact: Achieving Instructional Coherence
within and across Grades
Facilitate vertical collaboration between grade levels to help identify possible areas of additional learning especially when transitioning between and within schools.

- In-Person Meetings
- Virtual Meetings
- Collaboration Applications
• Lead the development of instruction to deeply engage students rather than merely “covering” the content -- students need to engage with mathematical processes and practices to build the mathematical knowledge and identity/agency they need for future success.

• What are some ways you have helped teachers develop effective tier 1 instruction?
• Help develop effective tier 2 and tier 3 interventions to supplement rather than replace core math instruction.

• Scheduling
• Collaborating with principals
• Resources and strategies
• Not a one method fits all
Albert’s Insomnia

2 numbers from 1 - 6
2 numbers 7 - 15
Using as many, or as few, number as you want, how high can you count?

http://albertsinsomnia.com/ ← Site
Parents

Joy of learning mathematics is the goal.

Try and ask more questions instead of giving answers.

Play games!!!
Formative Assessment

- Avoid starting the year with diagnostic testing…. start with joy!

- Qualitative feedback over grading

- 54 Examples
Resources

- Mathematics Teacher: Learning and Teaching Pk-12
- Catalyzing Change, including the book club
- Principles to Actions, including the toolkit
- Strengths-Based Teaching and Learning in Mathematics
- The Math Pact (3 volume), (in press now)
Webinars from 100 Days of Professional Learning

• Catalyzing Change Series
  – May 26: Catalyzing Change Across All Grade Levels: Opportunities and Challenges
  – May 27: Catalyzing Change: An Overview of the 4 Key Recommendations for Early Childhood and Elementary Mathematics
  – May 28: Catalyzing Change in Middle School Mathematics: Initiating Critical Conversations Centered on the 4 Key Recommendations

• The Five Practices Series
  – April 8: Orchestrating Productive Mathematics Discussions: Overcoming the Challenges (Grades 6-8)
  – April 9: The Five Practices in Practice: Orchestrating Productive Mathematics Discussions in High School
  – April 29: The 5 Practices in Practice: Taking on Classroom Challenges (grades 3-5)

• April 23: How we Move from Equality to Equity and Justice in Mathematics Teaching
• April 30: Challenging Dis/Abilities: Leveraging the Potential of All Students as Math Problem Solvers
• June 18: Promote Equitable Teaching Practices AND Focus on Content & Connections - Don’t Settle for Only One!
• June 22: Supporting Students’ Voice in the F2F and Virtual Mathematics Classroom
• June 25: Talk Talk Talk Talk Talk: Routines for Math Workshop