Mathematics Interventions: Where Do I Start?

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Goals

Participants will be able to:
• outline the components of a mathematics intervention.
• identify an appropriate first step towards improving their own mathematics interventions.
• access mathematics intervention resources that help them to meet their goal.
Agenda

• Welcome & Introduction
• Definitions & Acronyms
• 5 Steps to Implement a Math Intervention Program
• Where to Start Discussion
• Resources
• Q&A
Compared to literacy and social-emotional skills, "early math concepts, such as knowledge of numbers and ordinality, were the most powerful predictors of later learning." -Duncan et al., 2007

“Children with persistent problems attaining math skills are less likely to graduate from high school or go to college, and that math achievement in adolescents actually predicts labor market success.” -Platas, 2012
The Good News?

“Researchers now understand that every child can achieve at the highest levels in math at school, if they are given the opportunities.” -Jo Boaler
Mathematics Interventions: What do we mean?

Goal of Mathematics Intervention
Support all students in achieving success in mathematics by providing high quality whole class instruction, universal screening, targeted supplemental instruction, progress monitoring, intensive instruction, and more progress monitoring.
Turn & Talk

What do you currently do to support struggling mathematics learners or what would you like to be doing?
5 Steps to Developing a Mathematics Intervention Program

1) High Quality, Whole Class Instruction (Tier 1)
2) Universal Screening (Tier 1)
3) Targeted Supplemental Instruction (Tier 2)
4) Progress Monitoring (Tier 2 & 3)
5) Intensive Instruction (Tier 3)
The best defense is a good offense!

Start with Tier 1

- Establish mathematics 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.

-NCTM, Principles to Actions, 2014
Universal Screening

- Brief assessments
- Valid, reliable, and evidence-based
- Given to all students
- Identifies students who are struggling or who are at risk
- Leads to decisions about Tier 2 intervention
Targeted Supplemental Instruction

- Guided Math
  - Small groups
  - Rotations
  - Flexible
  - Targeted and monitored
  - Teacher is giving explicit instruction to one group at a time

- Technology Enhanced Math Interventions
  - Intelligent tutoring systems
  - Must be responsive
Progress Monitoring

• Ongoing assessment
• Short
• Monitor improvement
• Make decisions
• Individual or whole class
Intensive Instruction

• Used when a student is not responsive to Tier 2 instruction
• Longer duration, smaller group size, more frequent
• Targeted to specific skill areas
• Research-based strategies for each skill area
More Progress Monitoring

Progress monitoring continues throughout Tier 2 and Tier 3 instruction!
Developing a Mathematics Intervention Plan: What to Consider

• Materials - To Buy or Not To Buy?
• Not all intervention programs are created equal
• Time & Resources
• Strengths of teachers/strengths of students
• Start small and grow
Turn & Talk

What is the best place for your school to start?
High Quality, Whole Class Instruction (Tier 1) Resources

- Principles to Actions: Ensuring Mathematical Success for All, NCTM 2014 (http://www.nctm.org/PtA/)
- Five Classroom Dimensions That Show Deep Math Learning Is Happening (https://ww2.kqed.org/mindshift/2016/06/08/five-classroom-dimensions-that-show-deep-math-learning-is-happening/)
- Mathematics Assessment Project & Teaching for Robust Understanding (TRU) (http://map.mathshell.org/)
- Also consider: Number Talks/Math Talks & Fact Fluency
Universal Screening (Tier 1) Resources

- Screening Measures (https://wisconsinrticenter.org/educators/rti-in-action/spm-resources.html)
- Universal Screening Within a RTI Model (http://www.rtinetwork.org/learn/research/universal-screening-within-a-rti-model)
Targeted Supplemental Instruction (Tier 2) Resources

• Mathematics Intervention at the Secondary Prevention Level of a Multi-Tier Prevention System: Six Key Principles (http://www.rtinetwork.org/essential/tieredinstruction/tier2/mathintervention)

• Guided Math: A Framework for Mathematics Instruction by Laney Sammons

• Technology-Based Program Comparisons (https://www.edsurge.com/product-reviews/curriculum-products/math)
Intensive Instruction (Tier 3) Resources

- National Center on Intensive Intervention
  (http://www.intensiveintervention.org/)
Research-Based Resources & Strategies (Tier 2 & 3)

• Using RTI to Improve Learning in Mathematics
  (http://www.rtinetwork.org/learn/what/rtiandmath)

• IES Practice Guide/What Works Clearinghouse: Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools (https://ies.ed.gov/ncee/wwc/PracticeGuide/2)

• Intervention Central - Resources & Strategies
  (http://www.interventioncentral.org/response-to-intervention)

• Math Intervention Strategies (http://ebt.missouri.edu/?page_id=981)

• Academic Intervention Comparison Chart
  (http://www.intensiveintervention.org/chart/instructional-intervention-tools)
Progress Monitoring (Tier 2 & 3) Resources


• Progress Monitoring Measures [https://wisconsinrticenter.org/educators/rti-in-action/spm-resources.html](https://wisconsinrticenter.org/educators/rti-in-action/spm-resources.html)

Any Questions?

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