DISRUPTION & INNOVATION

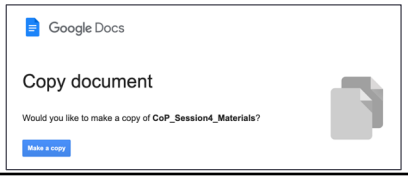
Planning Intentional Small Group and Individual Supports

Presenter Name
Date

1

Access Materials….

Access today's Note Catcher at the following link:
https://tinyurl.com/NDESession4NoteCatcher



2

Zoom Norms

- **Be present:** keep camera on when possible
- **Audio:** stay on "mute" if you are not speaking
- **Engage with others:** Zoom Breakout Rooms feature!
- **Chat:** use the chat feature when prompted
- **Materials**: Soft copy of the note catcher; links in chat box

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If math were weather, it would be _____because…?

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Plan & Take Action Reflection

Stop & Jot:

- Since our last session, what have you done to learn more or support teachers/schools with planning for and delivering just in time acceleration supports?
- What did you learn? What might you do the same or differently next time?

Last time we asked you to:
School-based leaders: Select one teacher to support in planning "just in time" acceleration supports (small group or whole group) based on their data
District-based leaders: observe the co-planning session and/or observe the teacher's instruction

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What are we doing today?

UNDERSTAND.

DIAGNOSE.

PLAN & TAKE ACTION.

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Why Intensive Interventions?

Broad math in preK predicted grade 10 broad math

Grade 1 broad math predicted broad math at grades 3, 5, and 10

Broad math in grade 8 predicted completion of 4-year college degree

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Why Intensive Interventions?

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Session Agenda

Time	Topic
15 min	Getting Started
45 min	Practice Recommendations for Mathematics Intervention
25 min	Building Fluency
5 min	Wrapping Up

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Today's Learning Targets

- Know research based practices recommendations for small group and individual interventions
- Deepen understanding of instructional practices that do and do not build fluency
- Commit to a bite-sized next step to improve your school's approach to intensive interventions

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Our Agenda

1. Getting Started
2. Practice Recommendations for Mathematics Intervention
3. Building Fluency
4. Reflection & Wrapping Up

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Multi-Tiered Systems of Support

Core Instruction: On-grade-level, high-quality instruction driven by high-quality curricula in the regular classroom.

Acceleration Support: Timely and targeted support using curriculum-embedded and -aligned materials, mainly in whole group or small group instruction.

Intensive Intervention: Small-group or individualized instruction designed to target specific skills using evidence-based, high-quality materials and strategies, including assessments, to monitor student progress.

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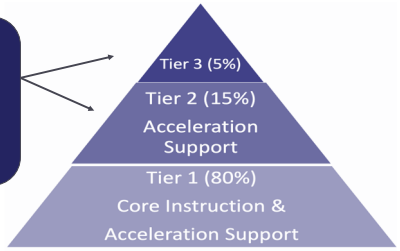
Intensive Interventions

Intensive Interventions through Small Group or Individual Supports



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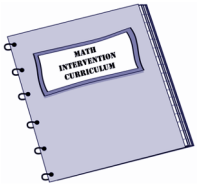
There is no magic bullet



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Starting Point: Pinpoint student learning needs

In-depth assessment to determine specific areas of need

- Universal Screening
- Diagnostic Screeners Interviews Observations

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Starting Point: Pinpoint the right content

Most important major work

- K-5 properties of whole numbers & operations
- Grades 4-8 in-depth work with rational numbers and advanced whole number arithmetic

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Starting Point: Pinpoint the instructional time

Designated instructional time in addition to grade level instruction

- Allotted intervention time inside the regular math block
- Additional intervention time outside of core instruction blocks

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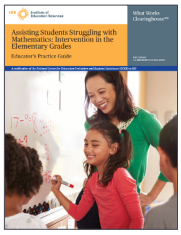
What does the research say?

1. Systematic Instruction
2. Clear and Accurate Language
3. Multiple Representations
4. Use Number Lines
5. Deliberate Instruction of Word Problems
6. Build Fluency through a Strategy-based Approach*



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Recommendation

Provide systematic instruction during intervention to develop student understanding of ***mathematical ideas.***

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What is systematic instruction?

Systematic Instruction is....

- Curricular materials and instruction designed to develop concepts and skills in an incremental and intentional way
- Connected to learning progressions
- Intentionally building student knowledge over time toward identified learning outcome(s)

Systematic Instruction is not....

- Direct instruction
- I do, we do, you do
- Telling
- Isolated drill of basic facts
- Teaching skills in isolation from meaningful context

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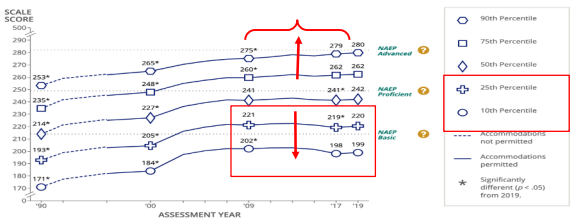
Trends in fourth-grade NAEP mathematics scores



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What's going on here?

Several studies revealed Tier 2 mathematics instruction for elementary and middle grade students consisted largely of worksheets *(Foegen & Dougherty, 2010; Swanson, Solis, Ciullo & McKenna, 2012)*.

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Systematic Instruction in Action

Read the lesson excerpt vignette.

Reflect & Discuss:

- What do you notice about the questions and tasks in the lesson?
- How does the sequence of the questions and tasks in the lesson support the student with making sense of division?

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How to carry out this recommendation.....

Integrate previous content	Review and integrate previously learned content throughout intervention to ensure that students maintain understanding of concepts and procedures.
Use accessible numbers	When introducing new concepts and procedures, use accessible numbers to support learning.
Address misunderstandings	Provide immediate, supportive feedback to students to address any misunderstandings.

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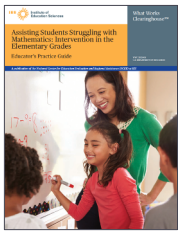

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Recommendation

Teach clear and concise mathematical language and support students' use of the language to help students effectively communicate their understanding of mathematical concepts

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Why is this dialogue problematic?

Teacher: Boys and girls, when we subtract, where do we start? Correct–we always start all the way on the right. I can't subtract 8 from 3, so I'll go next door and borrow. The 2 changes to a 1, and the 3 becomes 13.

Teacher: To solve 135 ÷ 5, what do we ask first? That's right, does 5 go into 1? Since 5 doesn't go into 1, we can ask how many times can 5 go into 13?

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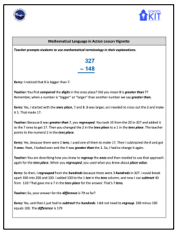
Mathematical Language in Action

Read the example lesson vignette.

Reflect & Discuss:

- How does the teacher prompt the student to use mathematical terminology in her explanation?
- How does the terminology support the student with making sense of a standard algorithm?



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How to carry out this recommendation…..

Build	Routinely teach mathematical vocabulary to build students' understanding of the mathematics they are learning.
Use	Use clear, concise, and correct mathematical language throughout lessons to reinforce students' understanding of important mathematical vocabulary words.
Support	Support students in using mathematically precise language during their verbal and written explanations of their problem solving.

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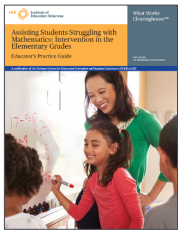

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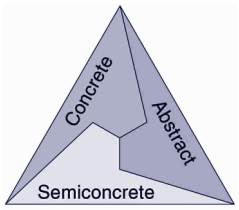
Recommendation

Use a well-chosen set of concrete and semi-concrete representations to support students' learning of mathematical concepts and procedures.



Source: Created by Robert Ronau

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Concrete →Semi-Concrete→Abstract

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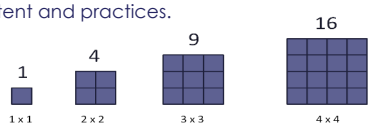
Why Representations?

- Representations give students a way to communicate their thinking.
- Representations support deeper understanding of the mathematical content and practices.

Square Numbers
1, 4, 9, 16, 25….



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Representations in Action

Watch the video.

Reflect & Discuss:

- How did the representation support the student in making sense of place value?
- What feedback and coaching support might you give this teacher?

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Virtual Intervention Lesson

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Let's Debrief

Reflect & Discuss:

- How did the representation support the student in making sense of place value?
- What feedback and coaching support might you give this teacher?

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How to carry out this recommendation…..

Choose	Provide students with the concrete and semi-concrete representations that effectively represent the concept or procedure being covered.
Connect	When teaching concepts and procedures, connect concrete and semi-concrete representations to abstract representations.
Revisit	Revisit concrete and semi-concrete representations periodically to reinforce and deepen understanding of mathematical ideas.

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Let's Summarize

Effective small group and individual intervention practices:

- Build mathematical understanding in and across lessons through systematic instruction
- Use clear and concise mathematical language that is consistent with future mathematics learning
- Explicitly connect concepts and procedures through a well-chosen set of concrete, semi-concrete, and abstract representations (as opposed to drilling procedural skills in isolation)

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Our Agenda

1. Getting Started
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Unfinished learning can be...

Conceptual

- Lacking prerequisite knowledge needed to access a grade level lesson or task
- Misconceptions
- Incomplete Understanding

Procedural

- Understands the mathematics behind the procedure
- Fluency not yet developed

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Conceptual Unfinished Learning

Example:

7th grade student needs to understand the concept of a ratio (6.RP.A.1) in order to analyze proportional relationships and use them to solve real-world and mathematical problems (7.RP.A)

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Procedural Unfinished Learning

Example:

4th Grade student not yet fluent with basic multiplication facts (3.OA.C.7) may need more support and time to divide multi-digit numbers (4.NBT.B.6).

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How would you describe fluency?

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What is fluency?

Fluency is...

- About understanding
- Attending to efficiency, flexibility, and accuracy
- Mastery of skills and automaticities, but also includes decision-making

Fluency is not...

- Memorization
- Automaticity with basic facts
- Not having students use their fingers
- The ability to quickly and accurately add, subtract, multiply, and divide with paper and pencil

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Debunking the Myths

Myth of One Way:

~~Some students are better off knowing just one way.~~

What the research REALLY tells us:

Each and every student is better off knowing a set of useful strategies and learning when each is useful (and when they are not).

Source: *Figuring out Fluency (2021) by J. Bay-Williams & J. SanGiovanni*

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Which is procedural fluency?

Subtract: 205 - 196

Student A:
I knew 196 was close to 205 so I just added up.
196 + 4 = 200.
Add 5 more to get 205.
So I knew 205 - 196 = 9.

Student B:
I crossed out the 5 and made it 15.
I made the 0 a 9 and the 2 a 1.
15 -9 = 6 , 9 - 9 = 0 and 1-1 = 0. So it's just 9.

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What does the research say?

- Strategy groups outperform non strategy groups *(Baroody et al. 2016; Brendefur et al., 2015; Locuniak & Jordan, 2008; Purpura et al., 2016).*
- Strategy groups retain facts better than non strategy groups *(Baroody et al., 2009; Henry & Brown, 2008; Hiebert & Carpenter, 1992; Heibert & Lefevre, 1986; Jordan et al., 2006; Thornton, 1978).*
- Strategy use predicts success in math achievement in general *(Geary, 2011; Jordan et al. 2007; Jordan et al., 2009; Vasilyeva et al. 2015).*

Source: *Figuring out Fluency (2021) by J. Bay-Williams & J. SanGiovanni*

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Building Fluency in Action

- Ms. Mendola
- Math Recovery Specialist
- One-to-One Virtual Intervention Lesson
- Joslyn, grade 5
- Building fluency with 4s facts

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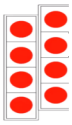
Lesson Progression

10 groups of 4
Remove 2 groups



Forward Sequence

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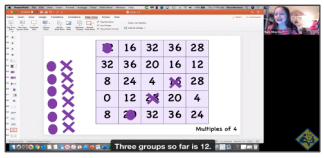
Building Fluency in Action

Watch the video.

Reflect & Discuss:

- How did the practice encourage the use of strategy?
- How does this fluency practice compare to your school's approach to fluency practice?



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Let's Debrief

- How did the practice encourage the use of strategy?
- How does this fluency practice compare to your school's approach to fluency practice in intervention instruction?

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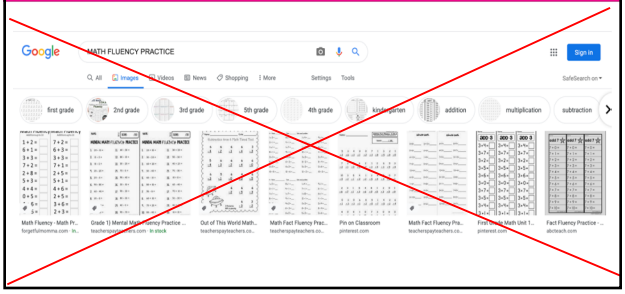
Effective fluency practice is not...



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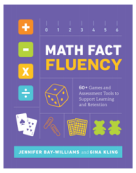
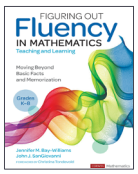
Quality Fluency Practice

- Fluency Routines
- Worked Examples
- Games
- Centers
- Independent Practice
- Taped Recordings





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Key Points

- Fluency is more than just basic facts.
- All students need high quality fluency instruction and practice. This is a matter equity.

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Our Agenda

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Call to Action

What is one immediate action you can take?

- **Review** the Call to Action suggestions.
- **Identify** one Call to Action suggestion you will commit to implementing in the next two weeks, or come up with your own bite-sized Call to Action.

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Thank You!

Please give us your feedback:

https://tinyurl.com/CoPMathSession4

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