Classwide Math Intervention

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All these kids been learning Common Core math, bout to learn how to “Carry the One” from their new homeschool teachers.
TIER 1:
All Students

Instructional program is aligned to state standards and instructional tactics are aligned with individual needs of students.

Universal screening is conducted effectively and data are used to determine need for classwide or small-group intervention.

Data teams consume student performance data to plan and evaluate instruction.

TIER 1.5:
Classwide Intervention (All Students in Selected Classes)

Weekly progress monitoring, data team troubleshooting to support effective implementation.

Response to classwide intervention signifies the need for small-group or individual intervention.

TIER 2:
Small-Group Intervention

Dynamic groupings, adjusted at least bi-weekly.

Intervention protocol is aligned with the group’s needs.

Intervention effects are summarized weekly with graphs.

Data meetings used to enhance implementation and ensure learning gains.

Response to Tier 2 intervention is used to identify students requiring individual intervention.

TIER 3:
Individualized Intervention

Drill-down assessment informs intervention.

Intervention effects are summarized weekly with graphs.

Data meetings used to enhance implementation and ensure learning gains.

Student progress monitoring data are used to identify students who might require a referral for eligibility evaluation.

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Math Success is Highly Predictable (so is risk)

Numeracy I
- Numeracy
- Addition,
- Subtraction, Inverse.
- Base Ten.

Numeracy II.
- Multiplication as repeated addition.
- Division. Inverse.
- Base Ten w Decimals.

Integers, Solving Linear Functions
Fractions/Proportional Understanding

Post-Secondary Outcomes

preK-K 1-2 3-4 5-6 7-8

Figure 2. Classification and regression tree model decision rules for identifying Mississippi students as at risk of failing to meet the ACT college readiness benchmark in math, based on grade 5 math achievement and race/ethnicity, 2011/12–2016/17

Grade 5 Math Performance!!
Prevention Effects from Effective Instruction in Math Are Cumulative!

Beginning of Year DIBELS Math Composite Percent Proficient

Grade Level

K | 1 | 2 | 3 | 4
---|---|---|---|---
2017 | 52% | 52% | 34% | 34% | 42% | 75%
2020 | 56% | 76% | 54% | 83% | 42% | 75%

K
1
2
3
4

0% 10% 20% 30% 40% 50% 60% 70% 80% 90%
Modern Math Myths

• Conceptual Understanding must precede Procedural Knowledge
• Timed assessment causes anxiety
• Directly teaching the algorithm is harmful
• Explicit Instruction only works for struggling learners
• Executive function interventions can improve math achievement

https://www.researchgate.net/publication/338585344_Belief-Based_Versus_Evidence-Based_Math_Assessment_and_Instruction_What_School_Psychologists_Need_to_Know_to_Improve_Student_Outcomes
“Procedural fluency and conceptual understanding are often seen as competing for attention in school mathematics. But pitting skill against understanding creates a false dichotomy. As we noted earlier, the two are interwoven. Understanding makes learning skills easier, less susceptible to common errors, and less prone to forgetting. By the same token, a certain level of skill is required to learn many mathematical concepts with understanding, and using procedures can help strengthen and develop that understanding.” (p. 122, NRC, 2001).
Conceptual v. Procedural Knowledge

• Procedural knowledge
  • Superficial
  • “knowledge of syntax, steps, conventions, and rules for manipulating symbols.”
  • Only sequential relationships.
  • Basically algorithms

Heibert & Lefevre (1986)
<table>
<thead>
<tr>
<th>Knowledge type</th>
<th>Knowledge quality</th>
<th>Knowledge quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedural</td>
<td>Common usage of procedural knowledge</td>
<td>?</td>
</tr>
<tr>
<td>Conceptual</td>
<td>?</td>
<td>Common usage of conceptual knowledge</td>
</tr>
</tbody>
</table>

Table 1
*Types and Qualities of Procedural and Conceptual Knowledge*
Bi-Directional, Iterative


- Iterative knowledge development.

- Predictive, bi-directional relationships between conceptual & procedural knowledge
  - PK 4th graders w fractions predicted 5th grade fraction CK and vice versa after controlling for prior knowledge (Hecht & Vagi, 2010).
  - Targeting CK produces gains in PK and vice versa (Schneider, Rittle-Johnson, & Star, 2011).

- Suggesting that one type of knowledge must precede the other is simply not consistent with research data.
What is Conceptual Understanding? Deep Procedural Knowledge (Star, 2005)

- Not sequential, but RICH in relationships
  - “knowledge of procedures... includes...order of steps, the goals and subgoals of steps, the environment or type of situation in which the procedure is used, the constraints imposed upon the procedure by the environment or situation, and any heuristics or common sense knowledge that are inherent in the environment or situation” (p. 409)

- Flexibility
  - someone with only superficial knowledge will use the standard technique which might not be the most efficient
What do We Mean by Flexibility

• Choosing the format of a proportion
  ➢ 33/57 versus .58; 3/5 versus 60%

• Choosing a method of simplification
  ➢ 22/44 = 11/22 = ½ versus 22/44 = ½

• Choosing to use a fraction to reflect the division operation in parentheses
  ➢ 6 x (14 ÷ 6) + 10

• Choosing a method for solving a linear equation
  ➢ 2 (x + 1) + 3 (x + 1) = 10
    • 5 (x + 1) = 10 (collect then distribute)
    • 2 x + 2 + 3x + 3 = 10 (distribute then collect)
  ➢ 2 (x + 1) + 3 (x + 2) = 10
    • 2x + 2 + 3x + 6 (you must distribute then collect to solve— only one option).
Activity:
Solve: $6 \times (14 \div 6) + 10$

• Math coach says: answer cannot be 24 because $14 \div 6 = 2.33$ and so $6 \times 2.33 + 10 = 23.98$
• Does this make sense to you?
• What is the mistake?
We intend for students to use a fraction to represent the division. So the example of $6 \times (14 \text{ divided by } 6) + 10$, we want children to solve as $6 \times 14/6 + 10$. When the problem is represented in this way, it is easy to solve and the correct answer is a whole number. Solving in this way is not only easier, but reflects a child’s understanding of the inverse relationship between multiplication and division. Logically, if you divide a number by a factor and then multiply the result by the same factor, you will always get the number you started with. So the solution to this problem is actually pretty simple when the student can solve that way. We believe that part of the work of math (and success with math) is not just going through the motion of problem solving, but thinking about the easiest way to solve a problem given important math skills like creating equivalent quantities and solving for unknowns. This is why we provide rigorous problems like this one that requires a child to think. Also, we do note in the directions for this measure that children should be encouraged to represent division with fractions if that allows for easier problem solving (and here’s a hint that is fine to share with students— if the division operation does not result in a whole number answer, then generally using a fraction will be the easier way to solve). Here are the directions for this measure with the relevant part in bold face font.

Modern Math Myths
Timed Assessment Causes Anxiety

- https://www.researchgate.net/publication/335329914_The_Nature_of_Math_Anxiety_in_Adults_Prevalence_and_Correlates

- Self-reported adult math anxiety was negatively correlated with fluent addition, subtraction, multiplication, and division performance ($r = - .25$ to $- .27$) and probability knowledge ($r = - .31$ to $- .34$). Self-reported test taking anxiety was negatively correlated with math skill fluency and probability knowledge, too ($r = - .22$ to $- .26$).

- Very little empirical evidence examining whether timed tests have a causal impact on anxiety and the existing few studies that include school-age participants do not support the idea (Grays, Rhymer, & Swartzmiller, 2017; Tsui & Mazzocco, 2006)
What about Anxiety?


- High math achievement especially strong predictor of lower math anxiety in first 2 years of school == Reciprocal effect of less entity oriented motivation (ability is fixed), anxiety, achievement.
More on Anxiety in Math

• [https://gregashman.wordpress.com/2020/03/12/defeating-maths-anxiety/](https://gregashman.wordpress.com/2020/03/12/defeating-maths-anxiety/)

Roediger & McDaniel: “Pitting the learning of basic knowledge against the development of creative thinking is a false choice. Both need to be cultivated. The stronger one’s knowledge about the subject at hand, the more nuanced one’s creativity can be in addressing a new problem. Just as knowledge amounts to little without the exercise of ingenuity and imagination, creativity absent a sturdy foundation of knowledge builds a shaky house.”

Fluency by Accuracy

Percent Correct

Digits Correct Per Two Minutes
Don’t Do This
Instead, Do This

Build Conceptual Understanding

Complete several of these each day with the child, encouraging the child to solve each problem aloud:

*We know we can use addition to solve multiplication problems. For example, $3 \times 5$ can be solved as 3 sets of 5 ($5 + 5 + 5$) or 5 sets of 3 ($3 + 3 + 3 + 3$).

Let's look at $20 \times 11$ on a number line. We know that $20 \times 11$ can be found on the number line by counting up 11 sets of 20 on the number to get to 220.

![Number line diagram](image)
Because we understand multiplication, it is easy for us to answer the questions below without even solving the problems.

Fill in the blank with > (greater than) or < (lesser than) or = (equal) to make the statement true.

31 \times 12 \underline{} 31 \times 11

31 \times 30 \underline{} 31 \times 31

15 \times 14 \underline{} 14 \times 15

13 \times 100 \underline{} 13 \times 99

Now try to solve these.

31 \times 13 = 31 \times 12 + \underline{}

11 \times 15 = 10 \times 15 + \underline{}

21 \times 13 = 20 \times 13 + \underline{}

21 \times 13 = 22 \times 13 - \underline{}}
And This

This skill is all about place value understanding. The standard algorithm works because it maintains the place value of the partial products. To demystify how this works, ask the student to solve the problem by multiplying the tens first and then the ones using the example below. Is the answer the same?

\[
\begin{array}{ccc}
43 & \times & 21 \\
\downarrow & & \downarrow \\
860 & + & 43 \\
\downarrow & & \downarrow \\
903 & & \\
\end{array}
\]

Now you try a few.
<table>
<thead>
<tr>
<th>Problem</th>
<th>Break Factor into Tens &amp; Ones</th>
<th>Multiply the Tens</th>
<th>Multiply the Ones</th>
<th>Add the Tens and the Ones</th>
<th>Add the Ones and the Tens</th>
<th>Is the Answer the Same?</th>
</tr>
</thead>
<tbody>
<tr>
<td>67 x 44</td>
<td>44 = (40 + 4)</td>
<td>67 x 40</td>
<td>67 x 4</td>
<td>2680 + 268</td>
<td>268 + 2680</td>
<td></td>
</tr>
<tr>
<td>98 x 16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>64 x 54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99 x 52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
When we are working with numbers that are greater in quantity, multiplication works the same way, but it gets very cumbersome to add that many numbers.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Break Factor into Tens &amp; Ones</th>
<th>Can Be Further Broken Into</th>
<th>Multiply all Tens and Ones</th>
<th>Add the Partial Products for the Final Answer</th>
</tr>
</thead>
</table>
| 67 x 44 | 44 = (40 + 4)                | 44 = (10 + 10 + 10 + 10 + 4) | 67 x 10 = 670               | 670  
670  
670  
670  
67 x 4 = 268  
+268  
2948 | 4 x 670 = 2680 |

Can you imagine adding 13 sets of 99? That would take forever. So we can use what we know about place value to make these problems easy to solve. Let's practice breaking a factor into tens and ones and solving each problem.
## And This

<table>
<thead>
<tr>
<th>Problem</th>
<th>Break Each Factor into Tens &amp; Ones</th>
<th>Tens +</th>
<th>Ones +</th>
<th>Combine to Solve</th>
</tr>
</thead>
<tbody>
<tr>
<td>92 x 86</td>
<td></td>
<td>92 x 80</td>
<td>92 x 6</td>
<td>7360 + 552 = 7912</td>
</tr>
<tr>
<td>76 x 61</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>69 x 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 x 31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92 x 88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98 x 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31 x 31</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Use Classwide Intervention
- It takes 15-20 min per day.
- It’s curriculum neutral and supplements.
- All students show benefits.
- It makes future risk decisions more accurate.
“Changing math curricula as an approach for whole-school intervention when large numbers of students do not achieve proficiency is more costly than targeted, preventative math intervention” (Barrett & VanDerHeyden, 2020)

Use Class-wide Intervention

Classroom Performance

80% of your class appears to be at risk and in need of intervention to benefit from grade-level instruction. We call this a classwide problem and recommend a classwide intervention.

Measure 1: Multiply 1 Digit by 2-3 Digit w/ & w/o Regrouping

Your students' screening scores compared to the target score.

Next Steps: Performing Class Wide Interventions

Skill packets will be provided to help practice foundational math skills. As you complete skills you will receive new packets and be able to view your class' skill progress.
High-Yield Action: Use Class-wide Intervention

Pre-Intervention

Classroom Performance
- 90% of your class appears to need extra practice to reach mastery at this grade level.
- We call this a classwide problem and recommend classwide practice to get the class on track to reach mastery.

Post-Intervention

Classroom Performance
- 77% of your class appears to need extra practice to reach mastery at this grade level.
- We call this a classwide problem and recommend classwide practice to get the class on track to reach mastery.

Use Classwide Intervention
Classwide Intervention Works (when used well)

ES = .68 CBMs
ES = .18 Gr 4
ES = .79 for at-risk

Use Classwide Intervention

http://www.intensiveintervention.org/chart/instructional-intervention-tools (NCII)
When Managed, Classwide Intervention Works!

<table>
<thead>
<tr>
<th></th>
<th>Absolute Risk Reduction</th>
<th>Number Needed to Treat</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Students</td>
<td>15%</td>
<td>7</td>
</tr>
<tr>
<td>Students receiving F/R Lunch</td>
<td>18%</td>
<td>6</td>
</tr>
<tr>
<td>Students receiving Special Education Services</td>
<td>39%</td>
<td>3</td>
</tr>
<tr>
<td>Low-Performing Students</td>
<td>44%</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: VanDerHeyden, McLaughlin, Algina, & Snyder, 2012; VanDerHeyden & Codding, 2015
The Instructional Hierarchy: How it Works

Frustrotional Range
- Restrict Task
- Immediate Feedback
- Elaborate Feedback

Instructional Range
- Opportunities to Respond
- Delayed Feedback
- Task Variation
- Goals/Motivation

Mastery Range
- More Task Variation
- FB may increase briefly

Performance Improving
Errors Decreasing
Amanda- show skill by treatment animation

- **Frustrational Range**
  - Restrict Task
  - Immediate Feedback
  - Elaborate Feedback

- **Instructional Range**
  - Opportunities to Respond
  - Delayed Feedback
  - Task Variation
  - Goals/Motivation

- **Mastery Range**
  - More Task Variation
  - FB may increase briefly

**Performance Improving**
Teachers determine mastery.

Fluency by Accuracy

Digits Correct Per Two Minutes

Percent Correct

Errors

High Accuracy

Rapid Growth

Skill Retention

Flexible, Adaptable Skill Use

Teacher incorrectly determines these students have mastered skill. These children will not successfully retain nor be able to use the skill to solve problems.

These children are ready for more challenging work & will have high probability of learning success, generalization.
How to Plan Instruction Using Science

Acquisition
Child response is inaccurate: Frustrational Performance.

Goal of instruction is to build accurate understanding. Tactics should include: salient cues, frequent & high-level prompting, immediate feedback, more elaborate feedback, sufficient exemplars of correct/incorrect responses, controlled task presentation.

Fluency
Child response is accurate but slow: Instructional Performance

Goal of instruction is to build fluency (accuracy + speed). Tactics should include: intervals of practice, opportunities to respond, delayed feedback, goals & reinforcement for more fluent performance.

Generalization & Adaptation
Child response is fluent: Mastery Performance

Goal is to promote generalization. Tactics should include: cues to generalize, corrective feedback for application and problem-solving, systematic task variation, fading of support.

How-To For Classwide Intervention in Math
How To Get Started:

• Intervention protocol.
  • Here is one to try: https://static1.squarespace.com/static/57ab866cf7e0ab5cbba29721/t/5d67ed2a390a160001c5b4ac/1567092010232/Spring+Math+Classwide+IP.pdf
  • www.springmath.com > How it Works > View a sample classwide intervention

Classwide Interventions

• Intervention packets targeting foundational math skills
• Students work in pairs for 15-20 minutes per day
• Each week students are assessed on the skill being taught.
• Class progress is graphed and when the class has achieved the target score, they move on to the next skill
• Updates on group progress for coaches and administrators

View a sample classwide intervention
How To Get Started:

- Intervention protocol.
- Sequence of skills.
- Daily practice materials.
- Weekly assessment materials.
- Criteria for decision making, a way to graph progress, and implementation support structures.
<table>
<thead>
<tr>
<th>Adams, Maximus</th>
<th>Goyette, Dangelo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homenick, Darrin</td>
<td>Rolfson, Keegan</td>
</tr>
<tr>
<td>Lehner, Salvador</td>
<td>Blick, Jerald</td>
</tr>
<tr>
<td>Collins, Lamont</td>
<td>Waelchi, Jacinthe</td>
</tr>
<tr>
<td>Reichert, Marlen</td>
<td>Skiles, Daphnee</td>
</tr>
<tr>
<td>Greenholt, Clovis</td>
<td>Kozey, Monserrat</td>
</tr>
<tr>
<td>Kreiger, Selena</td>
<td>Turcotte, Kayleigh</td>
</tr>
<tr>
<td>Larson, Kobe</td>
<td>Champlin, Gertrude</td>
</tr>
</tbody>
</table>
### Workers
- We use our **brains** to think.
- We use our **minds** to remember.
- We use our **ears** to listen.
- We use our **eyes** to watch.
- We use our **mouths** to help.
- We use our **hands** to write.

### Helpers
- We use our **ears** to listen.
- We use our **eyes** to watch.
- We use our **mouths** to help.

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**Intervention Protocol**

**Classwide Math Intervention**

**Preparation:**
- This is your master set of materials for the week.
- Make 1.5 copies of the practice sheets Day 1-6 for each student in your class. Each student will have one copy for independent practice, while each pair of students will have one copy for paired practice.
- If you are using flashcards to practice, you can make only 1 copy per student.
- To set up your student pairs click on “Students” in your dashboard, then “Suggested Student Pairs.”
- Identify the first “Worker,” which should be the higher-performing student. This student will always work first.

- □ Say, it’s time for Spring Math. Please get together with your math partner. Please take out your practice materials, have your colored pen and pencil out, and show me you are ready.
- □ Say, Workers, your job is to work as many problems correctly as you can. As you work, be sure to talk through the problem so your partner can hear and see you solve the problem. Use a quiet voice while you work.
- □ Say, Helpers, your job is to follow along, listen and watch as the worker is working problems. If you see an error, speak up! Say, “Stop, let’s check this one.”
- □ Say, Helpers, you should give the worker a hint, point to the exact error, but don’t give them the answer. See if the worker can fix the error.
- □ Say, Workers, you must stick with the worker but don’t give them the answer. If you get really stuck, circle the problem and ask me for help.
- □ Set the timer for 3 minutes.
- □ Say, Remember, your goal is to work as many problems as possible with 100% accuracy. Ready? Begin/Start the timer when you say Begin.
Active Ingredients

• Modeling
• Practice for the right level of difficulty (opps to respond, complete learning trials)
• Corrective feedback & repetition loop
• Goal setting
• Delayed error correction w verbal rehearsal component
• Reward
• Advances difficulty based on proficiency

Use Classwide Intervention
Use Classwide Intervention
Classwide Intervention Progress

Subtraction 0-9

Classwide Rate of Improvement: 4.1

Skill Tree Progress
- Sums to 6
- Sums to 12
- Subtraction 0-5
- Sums to 20
- Subtraction 0-9
- Fact Families: Add/Subtract 0-9
- Subtraction 0-12
- Subtraction 0-15
- Subtraction 0-20

Use Classwide Intervention
Improves Learning, but Makes it Clear Who Needs More

Use Classwide Intervention
Prevention Effects From Effective Instruction In Math Are Cumulative!

Program evaluation data from Spring Math Classwide Math Intervention. Beginning of Year Percent Not at Risk on DIBELS math composite before (baseline) and after the introduction of intervention. Child performance gains transferred to subsequent years.
Recent survey findings reported by:
Dose What is Needed, Not What Fits Schedule

![Graph showing the improvement in Digits Correct Per 2 Min for Fact Families Multiplication/Division Fourth Grade across different frequencies of intervention.](image-url)

- Control
- Once Weekly
- Twice Weekly
- Daily

Don’t Do This

- Add Components
- Increases Complexity
- Innovation Not Working
- Decreases Probability of Correct Use

Manage Intervention
Use Implementation Science

- Plan to be present when intervention is started.
- Track intervention effects weekly.
- When growth is weak, check-in with teacher by watching intervention being implemented.
- Help troubleshoot any barriers and say that you will check in again next week.
- Wash, Rinse, Repeat.
Signs of an Effective Intervention

• Scores available for each week.
• Median increases each week within instructional groupings.
• Most students grow week over week.
• Very few students remain in the frustrational range.
• Few students require more intensive intervention.

Activity: NCII DBI Implementation Rubric
https://intensiveintervention.org/resource/dbi-implementation-rubric-and-interview
This is a High-Integrity Intervention

This is a Low-Integrity Intervention

Classwide Intervention Progress

Classwide Rate of Improvement: 4.5

Fact Families: Add/Subtract 0-20

Classwide Rate of Improvement: 2.0

Manage Intervention
Classwide Intervention Progress

Classwide Rate of Improvement: 1.8

Sums to 6

Skill Tree Progress
- Sums to 6
- Sums to 12
- Subtraction 0-5
- Sums to 20
- Subtraction 0-9
- Fact Families: Add/Subtract 0-9
- Subtraction 0-12
- Subtraction 0-15
- Subtraction 0-20

It's time to start Winter screening!

Coach Visit
It's time to start Winter screening!

Classwide Intervention Progress

Sums to 6

Classwide Rate of Improvement: 1.8

Skill Tree Progress
- Sums to 6
- Sums to 12
- Subtraction 0-5
- Sums to 20
- Subtraction 0-9
- Fact Families: Add/Subtract 0-9
- Subtraction 0-12
- Subtraction 0-15
- Subtraction 0-20

Coach Visit

Mastery Target (40)

Instructional Target (20)
<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not doing the intervention.</td>
<td>Make intervention use fail-proof: Make sure you have materials. Make sure you know HOW to implement. Make sure there is a scheduled time for intervention.</td>
</tr>
<tr>
<td>Students do not know how to follow the classwide intervention routine.</td>
<td>Re-train the students. Show the students how to get into working pairs, how to use the materials, how to provide high-quality feedback, and how to be engaged.</td>
</tr>
<tr>
<td>Teacher is not completing all steps of the intervention.</td>
<td>Review missed steps and understand rationale. Papers must be scored during the intervention because that provides feedback to the student, provides the error correction opportunity, and provides goal attainment opportunity. The error correction component is important because it improves student accuracy for the next session.</td>
</tr>
<tr>
<td>Children seem bored with the intervention.</td>
<td>Include rewards to motivate students. Display the median graph on dashboard for the class to see their growth. Be sure to set daily goals with the students!</td>
</tr>
</tbody>
</table>
Gains Across Years and By Dosage

Percent Proficient on Winter DIBELS Composite by Grade & Year

- **K**: 80% 95%
- **1**: 56% 65% 84% 85%
- **2**: 69% 75% 88% 95%
- **3**: 39% 74% 92% 100%
- **4**: 63% 64% 76% 100%

Legend:
- Blue: 2017
- Red: 2018
- Green: 2019
- Purple: High-Dose 2019
Cumulative Protective Benefit Can Be Seen
It Takes Time to Move the “Big” Indicators

Percent Proficient on PSSA (State Year-End Test) for Grades 3 and 4

- 3rd Grade
- 4th Grade

- 2016-2017
- 2017-2018
- 2018-2019
But After Year 2, they Move
In Summary,

1. Classwide intervention will help you address high base rates of risk: improve learning rapidly in a highly efficient way & allow for more accurate risk determination.

2. Classwide intervention is a fluency-building intervention.

3. Daily use, 10-15 min per day, produces reduced risk, improved learning, more accurate decisions.

4. Implementation management is key to success.
Final Questions, Discussion