



# Effective Implementation of High-Quality Mathematics Instruction

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## Learning Objectives

- Reflect upon the lessons learned from the previous decade of math instruction in Florida.
- Understand the components of high-quality B.E.S.T. Math Instruction and how to lead for it.
- Review recent and upcoming B.E.S.T. Mathematics Professional Learning opportunities and resources.

## Icon Guide

Icon on the Slide	Meaning of the Icon
	Denotes opportunity for writing in Participant Guide
	Denotes opportunity for discussion



“Our students are capable of unprecedented success. It is our responsibility to implement the infrastructure necessary to help them thrive.”

Florida B.E.S.T. Standards  
Mathematics p.1



## Let's Play: Is it Fact or Fiction?

- Think: Make your own independent decision
- Pair: Discuss with a partner
- Share: Determine as a table group

# Fact or Fiction?

## Scenario #1

An educator in my district is teaching M/J Grade 7 Mathematics (#1205040) solely from the textbook, starting at Chapter 1 and working through to Chapter 12 of 16.

This practice will allow for the B.E.S.T. Standards for Mathematics aligned to the M/J Grade 7 Mathematics (#1205040) course to be taught within 180 days of instruction.



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**Fiction**





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## A Brief Overview of Implementation Science



**Why would the Florida Department of Education engage with Implementation Science experts when implementing Florida's state academic standards?**



## Why would the Florida Department of Education engage with Implementation Science experts when implementing Florida's state academic standards?

Florida Public Schools Statistics	
Instructional Staff	204,132
Principals	3,677
Assistant Principals	5,560
Students	~2,900,000

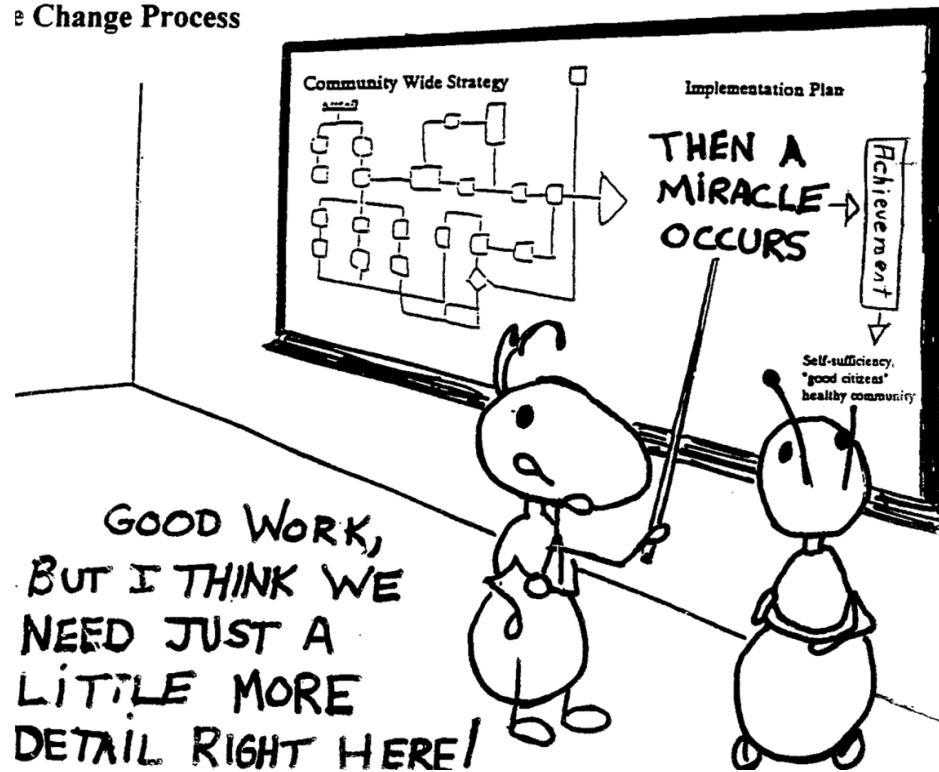
*State Level Report: Florida Public Schools Data (2022-23, Final Survey 2)*



Implementation science refers to the “methods or techniques used to enhance the adoption, implementation, and sustainability” of an intervention (Powell et al., 2015)

Implement = Use

Change Process



## Active Implementation



Fixsen, Blase, Metz, & Van Dyke (2015)

## Fact or Fiction?

### Scenario #2

An educator in my district is teaching Grade 4 Accelerated Mathematics (#5012065).

The educator indicates that this course will cover 1½ years of content. Predominantly, students will be learning Grade 5 math.



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**Fact**



Grade 3		Grade 4		Grade 5	
MA.3.NSO.1.1	MA.3.AR.2.3	MA.4.NSO.1.2	MA.4.NSO.1.1	MA.5.NSO.1.1	MA.5.AR.2.1
MA.3.NSO.1.2	MA.3.AR.3.1	MA.4.NSO.1.3	MA.4.NSO.1.5	MA.5.NSO.1.2	MA.5.AR.2.2
MA.3.NSO.1.3	MA.3.AR.3.2	MA.4.NSO.1.4	MA.4.NSO.2.3	MA.5.NSO.1.3	MA.5.AR.2.3
MA.3.NSO.1.4	MA.3.AR.3.3	MA.4.NSO.2.1	MA.4.NSO.2.4	MA.5.NSO.1.4	MA.5.AR.2.4
MA.3.NSO.2.1	MA.3.M.1.1	MA.4.NSO.2.2	MA.4.NSO.2.6	MA.5.NSO.1.5	MA.5.AR.3.1
MA.3.NSO.2.2	MA.3.M.1.2	MA.4.NSO.2.5	MA.4.NSO.2.7	MA.5.NSO.2.1	MA.5.AR.3.2
MA.3.NSO.2.3	MA.3.M.2.1	MA.4.FR.1.1	MA.4.FR.1.2	MA.5.NSO.2.2	MA.5.M.1.1
MA.3.NSO.2.4	MA.3.M.2.2	MA.4.FR.1.3	MA.4.FR.2.4	MA.5.NSO.2.3	MA.5.M.2.1
MA.3.FR.1.1	MA.3.GR.1.1	MA.4.FR.1.4	MA.4.AR.1.1	MA.5.NSO.2.4	MA.5.GR.1.1
MA.3.FR.1.2	MA.3.GR.1.2	MA.4.FR.2.1	MA.4.AR.1.3	MA.5.NSO.2.5	MA.5.GR.1.2
MA.3.FR.1.3	MA.3.GR.1.3	MA.4.FR.2.2	MA.4.M.1.1	MA.5.FR.1.1	MA.5.GR.2.1
MA.3.FR.2.1	MA.3.GR.2.1	MA.4.FR.2.3	MA.4.M.1.2	MA.5.FR.2.1	MA.5.GR.3.1
MA.3.FR.2.2	MA.3.GR.2.2	MA.4.AR.1.2	MA.4.DP.1.1	MA.5.FR.2.2	MA.5.GR.3.2
MA.3.AR.1.1	MA.3.GR.2.3	MA.4.AR.2.1	MA.4.DP.1.2	MA.5.FR.2.3	MA.5.GR.3.3
MA.3.AR.1.2	MA.3.GR.2.4	MA.4.AR.2.2	MA.4.DP.1.3	MA.5.FR.2.4	MA.5.GR.4.1
MA.3.AR.2.1	MA.3.DP.1.1	MA.4.AR.3.1		MA.5.AR.1.1	MA.5.GR.4.2
MA.3.AR.2.2	MA.3.DP.1.2	MA.4.AR.3.2		MA.5.AR.1.2	MA.5.DP.1.1
		MA.4.GR.1.1		MA.5.AR.1.3	MA.5.DP.1.2
		MA.4.GR.1.2			
		MA.4.GR.1.3			
		MA.4.GR.2.1			
		MA.4.GR.2.2			
<b>Grade 3 Accelerated Mathematics</b>			<b>Grade 4 Accelerated Mathematics</b>		



Grade 6		Grade 7		Grade 8	
MA.6.NSO.1.1	MA.6.AR.3.1	MA.7.NSO.2.1	MA.7.NSO.1.1	MA.8.NSO.1.1	MA.8.F.1.1
MA.6.NSO.1.2	MA.6.AR.3.2	MA.7.NSO.2.2	MA.7.NSO.1.2	MA.8.NSO.1.2	MA.8.F.1.2
MA.6.NSO.1.3	MA.6.AR.3.3	MA.7.NSO.2.3	MA.7.AR.2.2	MA.8.NSO.1.3	MA.8.F.1.3
MA.6.NSO.1.4	MA.6.AR.3.4	MA.7.AR.1.1	MA.7.AR.3.3	MA.8.NSO.1.4	MA.8.GR.1.1
MA.6.NSO.2.1	MA.6.AR.3.5	MA.7.AR.1.2	MA.7.AR.4.1	MA.8.NSO.1.5	MA.8.GR.1.2
MA.6.NSO.2.2	MA.6.GR.1.1	MA.7.AR.2.1	MA.7.AR.4.2	MA.8.NSO.1.6	MA.8.GR.1.3
MA.6.NSO.2.3	MA.6.GR.1.2	MA.7.AR.3.1	MA.7.AR.4.3	MA.8.NSO.1.7	MA.8.GR.1.4
MA.6.NSO.3.1	MA.6.GR.1.3	MA.7.AR.3.2	MA.7.AR.4.4	MA.8.AR.1.1	MA.8.GR.1.5
MA.6.NSO.3.2	MA.6.GR.2.1	MA.7.GR.1.1	MA.7.AR.4.5	MA.8.AR.1.2	MA.8.GR.1.6
MA.6.NSO.3.3	MA.6.GR.2.2	MA.7.GR.1.2	MA.7.GR.1.3	MA.8.AR.1.3	MA.8.GR.2.1
MA.6.NSO.3.4	MA.6.GR.2.3	MA.7.DP.1.1	MA.7.GR.1.4	MA.8.AR.2.1	MA.8.GR.2.2
MA.6.NSO.3.5	MA.6.GR.2.4	MA.7.DP.1.2	MA.7.GR.1.5	MA.8.AR.2.2	MA.8.GR.2.3
MA.6.NSO.4.1	MA.6.DP.1.1	MA.7.DP.1.3	MA.7.GR.2.1	MA.8.AR.2.3	MA.8.GR.2.4
MA.6.NSO.4.2	MA.6.DP.1.2	MA.7.DP.2.1	MA.7.GR.2.2	MA.8.AR.3.1	MA.8.DP.1.1
MA.6.AR.1.1	MA.6.DP.1.3	MA.7.DP.2.2	MA.7.GR.2.3	MA.8.AR.3.2	MA.8.DP.1.2
MA.6.AR.1.2	MA.6.DP.1.4	MA.7.DP.2.3	MA.7.DP.1.4	MA.8.AR.3.3	MA.8.DP.1.3
MA.6.AR.1.3	MA.6.DP.1.5	MA.7.DP.2.4	MA.7.DP.1.5	MA.8.AR.3.4	MA.8.DP.2.1
MA.6.AR.2.1	MA.6.DP.1.6			MA.8.AR.3.5	MA.8.DP.2.2
MA.6.AR.2.2				MA.8.AR.4.1	MA.8.DP.2.3
MA.6.AR.2.3				MA.8.AR.4.2	
MA.6.AR.2.4				MA.8.AR.4.3	
<b>Grade 6 Accelerated Mathematics</b>		<b>Grade 7 Accelerated Mathematics</b>			





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## The B.E.S.T. Standards for Mathematics: Reflecting upon Lessons Learned

## Executive Order 19-32

Governor Ron DeSantis directed that by January 1, 2020, the Commissioner of Education shall comprehensively review Florida's Kindergarten through grade twelve academic standards and provide recommended revisions to the Governor.

- ✓ A. Articulate how Florida will **eliminate Common Core** (Florida Standards) and ensure we return to the basics of reading, writing and arithmetic;
- ✓ B. **Provide a roadmap** to make Florida's standards number one in the nation;
- ✓ C. Reflect the Commissioner's consultation with relevant stakeholders to **include parents and teachers**;
- ✓ D. Deem how to **increase the quality of instructional curriculum**;
- ✓ E. Suggest **innovative ways to streamline testing**;
- ✓ F. Identify opportunities to **equip high school graduates with sufficient knowledge of America's civics**, particularly the principles reflected in the United States Constitution, so as to be capable of discharging the responsibilities associated with American citizenship; and
- ✓ G. **Outline a pathway** for Florida to be the most literate state in the nation.

# Improving Math Instruction in Florida

- Common Core contained some critical flaws that inhibited student learning, including:
  - Lack of aligned instructional materials;
  - Parents and others were unable to assist their children with learning math;
  - Language required “unpacking” to understand learning criteria; and
  - “Unpacking” by curriculum developers, assessment writers and educators was often not the same.

## Established Success Criteria for Development of the B.E.S.T. Standards for Mathematics

- Provide a roadmap to make Florida's standards number one in the nation.
- Support achievement as reflected on yearly state assessments, NAEP, ACT and SAT.
- Lead the nation in students graduating high school, as well as earning college degrees, industry certifications and other high-quality credentials.
- Provide a logical, sequential progression of content that increases a student's knowledge and skills over time.
- Develop a standardized coding scheme.
- Have clear and concise standard language.

## Common Core vs. B.E.S.T.

### Common Core Mathematics

- Required that students utilize specific strategies to solve problems.
- Common Core standards contained too many verbs and were confusing to teachers.
- Common Core lacked a progression for students to understand across grade levels.

### B.E.S.T. Mathematics

- Students are able to use any method to solve problems.
- The B.E.S.T. Standards for Mathematics are clear and concise and easily understood by teachers.
- The B.E.S.T. Standards have connected benchmarks within a grade level and from grade to grade.

# Structural Framework of the B.E.S.T. Standards for Mathematics

- Clear and concise language to set expectations of what students should know and be able to do by the end of the year.
- Encourages student-centered instruction.
- The benchmarks were written to support multiple pathways for success in career and college for students.
- Intentional balance of conceptual understanding and procedural fluency with the application of accurate real-world context intertwined within mathematical concepts for relevance.

# Reflection

The B.E.S.T. Standards for Mathematics were written by Florida teachers for Florida students.

How does that statement impact your work as an instructional leader?



## Fact or Fiction?

### Scenario #3

As you are walking a math classroom in your district or school, you notice that a pair of students are working together to solve the same math problem.

One student has solved the problem and has an answer of  $\frac{6}{8}$ .

One student has solved the problem and has an answer of  $\frac{3}{4}$ .

Both students are correct.





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**Fact**





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## High-Quality B.E.S.T. Math Instruction

# The Five Components of Evidence-Based, High-Quality B.E.S.T. Math Instruction

1. Horizontal and Vertical Alignment
2. Balance Between Inquiry-Based and Direct Instruction
3. Student-Centered Instruction
4. Assessment
5. Tiered Instruction

# Component 1: Horizontal and Vertical Alignment

- Teachers help students see mathematical connections within and between topics of the grade level or course.
- Teachers build on learning from previous course(s) and prepare students for future learning in the next course(s).

## Component 2: Balance Between Inquiry-Based and Direct Instruction

- Teachers encourage students to explore mathematical ideas through the use of manipulatives, different representations and challenging tasks.
- Teachers help students build fluency with procedures by summarizing steps and encouraging practice.

## Component 3: Student-Centered Instruction

- Teachers create both collaborative and independent classroom learning environments in which students are actively engaged in mathematical tasks.
- Teachers provide challenging tasks, which encourage students to be risk-takers and persevere in their learning.

## Component 4: Assessment

- Teachers assess student understanding in multiple ways (formative, progress monitoring, summative, etc.).
- Through assessment, teachers provide opportunities for students to reflect on their progress toward mastery, and teachers use student data (informal and formal) to reflect on their instructional practices.

## Component 5: Tiered Instruction

- Teachers observe students and have student discussions to determine whether they need small group or individualized supports (Tier 2 and Tier 3 Interventions).



## Reflection

How can you, as an instructional leader, support high-quality B.E.S.T. Mathematics instruction within the math classrooms in your district?





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# The Goals

# Goal 1: Represent Mathematical Concepts in Multiple Ways

- Students demonstrate their understanding of a mathematical concept by representing the concept in various ways: verbal descriptions, expressions, equations, drawings and graphs.
- Students understand which representation may be best to use depending on the context.

## Goal 2: Mathematical Fluency

- Students demonstrate their mathematical fluency by selecting efficient and appropriate methods for solving problems, and maintaining flexibility and accuracy while performing procedures or mental calculations.

## Goal 3: Mathematical Discourse

- Students demonstrate their understanding of a mathematical concept or method by communicating it effectively using appropriate vocabulary and by analyzing the thinking of others.

## Goal 4: Mathematical Patterns and Structures

- Students recognize patterns and structures that connect different mathematical concepts and relate current knowledge to new ideas.
- Students use patterns and structures to decompose complex problems into manageable parts.

## Goal 5: Check for Reasonableness of Solutions

- Students maintain confidence in and ensure accuracy of their work by estimating solutions, explaining their methods, evaluating results based on the context, and checking their calculations.

## Goal 6: Real-World Applications

- Students demonstrate their understanding by connecting mathematical concepts to everyday experiences and by representing a real-world situation with mathematics.



## Reflection

Within this first year of implementation, how have the six goals described been present within the math classrooms in your district?

Within the B.E.S.T. Standards for Mathematics, are there supports in place to assist you as a leader?



# Mathematical Thinking and Reasoning Standards

MA.K12.MTR.1.1 Actively participate in effortful learning both individually and collectively.

MA.K12.MTR.2.1 Demonstrate understanding by representing problems in multiple ways.

MA.K12.MTR.3.1 Complete tasks with mathematical fluency.

MA.K12.MTR.4.1 Engage in discussions that reflect on the mathematical thinking of self and others.

MA.K12.MTR.5.1 Use patterns and structure to help understand and connect mathematical concepts.

MA.K12.MTR.6.1 Assess the reasonableness of solutions.



MA.K12.MTR.7.1 Apply mathematics to real-world contexts.



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## **B.E.S.T. Mathematics Instruction: Professional Learning and Resources**

# Opportunities for Professional Learning Support

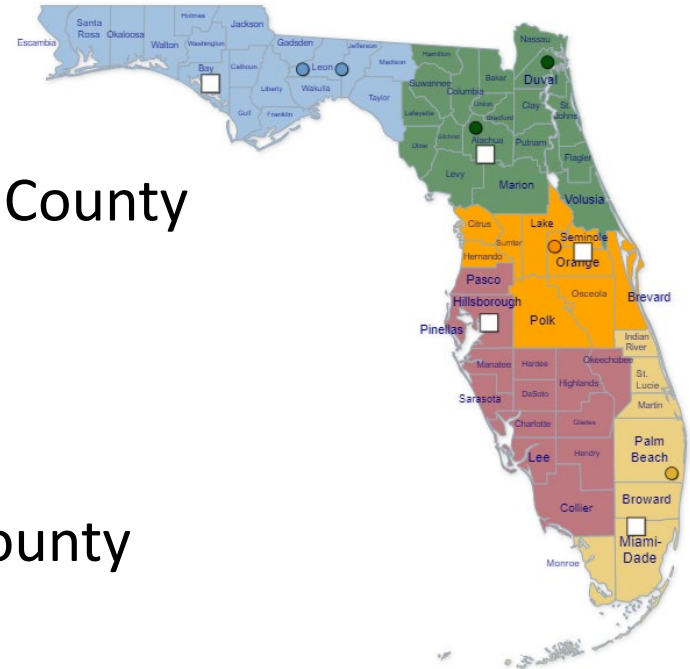
- B.E.S.T. Instructional Guides for Mathematics
- B.E.S.T. Mathematics Transition Guide for Mathematics
- Mathematical Thinking and Reasoning Coaching Tool
- B.E.S.T. Standards Progression for Mathematics
- B.E.S.T. Mathematics Summer Professional Learning Series for Educators and Leaders

# B.E.S.T. Math Middle Grades 2023 Spring Professional Learning Events

- Participants focused on:
  - Grades 6-8 standards and benchmarks;
  - Utilizing instructional materials; and
  - Acquiring strategies to teach accelerated courses in middle grades.
- Five locations provided professional learning with a capacity of 150 participants at each site.
- Nearly 750 math teachers and teacher leaders attended.

# B.E.S.T. Math Middle Grades Professional Learning Events (Spring 2023)

- Northwest
  - February 18, 2023 | Bay County
- Southeast
  - February 25, 2023 | Miami-Dade County
- Central
  - March 4, 2023 | Orange County
- Southwest
  - March 11, 2023 | Hillsborough County
- Northeast
  - March 18, 2023 | Alachua County

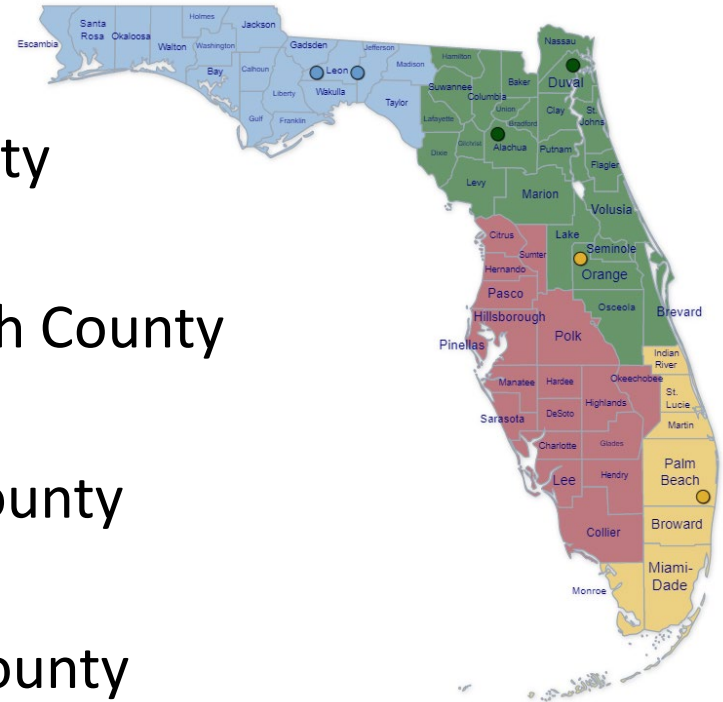


# B.E.S.T. Math Summer Professional Learning Event Series

- Participants are able to register for one of the following tracks: K-2, 3-5, 6-8, 9-12 or Leadership.
- Each district was given a guaranteed number of registrations per track.
- Open registration is now open for any unclaimed seats.

# B.E.S.T. Math Summer Professional Learning Event Series

- Northwest
  - June 20 – 22, 2023 | Leon County
- Southeast
  - June 27 – 29, 2023 | Palm Beach County
- Southwest
  - July 11 – 13, 2023 | Sarasota County
- Northeast
  - July 18 – 20, 2023 | St. Johns County







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Questions?



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