



KENTUCKY CENTER
FOR MATHEMATICS

KCM Favorites Implementing Effective Teaching Practices Grades 9-12

Welcome!



Your host

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KCM Website

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GOOD NEWS

KCM Launches Multi-Series Virtual PD

Find out more in this month's article!



Good News!

The KCM is hard at work to ensure Kentucky teachers have access to innovative professional development from home.

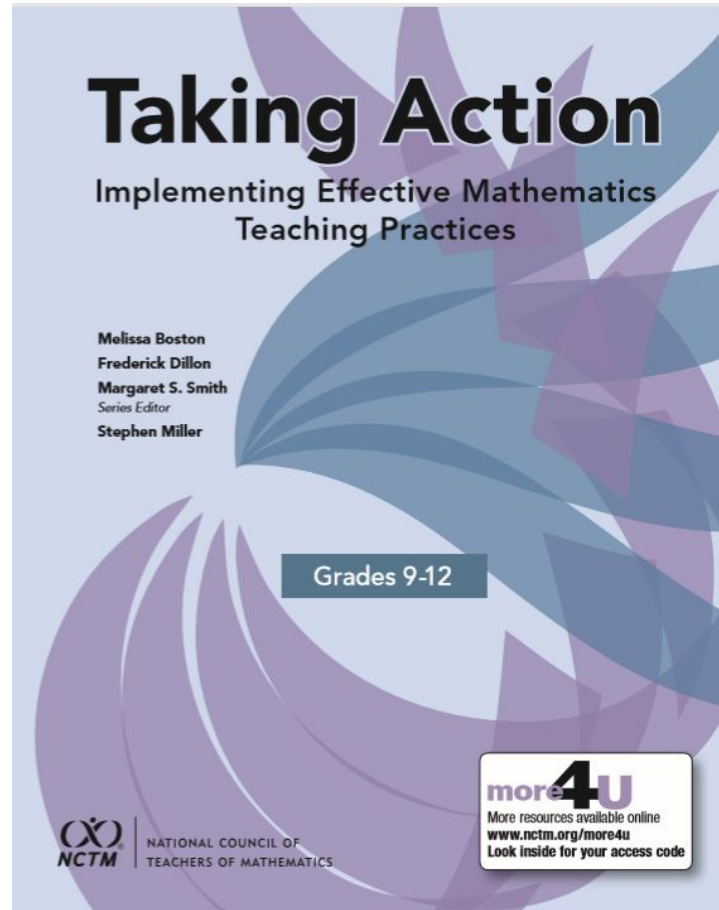
Through the newly launched [KCM Virtual](#) site, mathematics teachers from all grade levels will have access to live zoom meetings, video records and corresponding materials. [Read more.](#)

[KCM Favorites - Apr. 20 - Apr. 24](#)

[Developing Multiplicative Thinking - Apr. 27 - May 1](#)

[Focus on Fractions - May 4 - May 8](#)

KCM Favorite



Boston, M., Dillon, F. L., Smith, M. S., & Miller, S. (2017). Taking action: Implementing effective mathematics teaching practices in grades 9-12. Reston, VA: National Council of Teachers of Mathematics.

Why I Love This Book

- Describes *Mathematics Teaching Practices* through lens of secondary practitioner
- Provides specific suggestions on *how* teachers can implement practices in secondary classrooms
- Actively engages readers with specific artifacts of classroom practice (e.g., mathematics tasks, narrative cases of classroom instruction, video clips, student work samples).

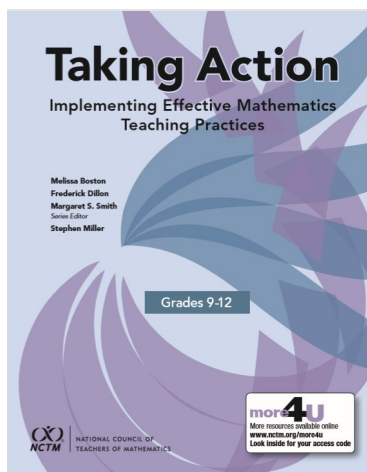
Taking Action:
Implementing Effective Mathematics
Teaching Practices

in Grades 9–12

About the Authors



Melissa Boston Frederick Dillon Margaret Smith Stephen Miller



Mathematics Teaching Practices

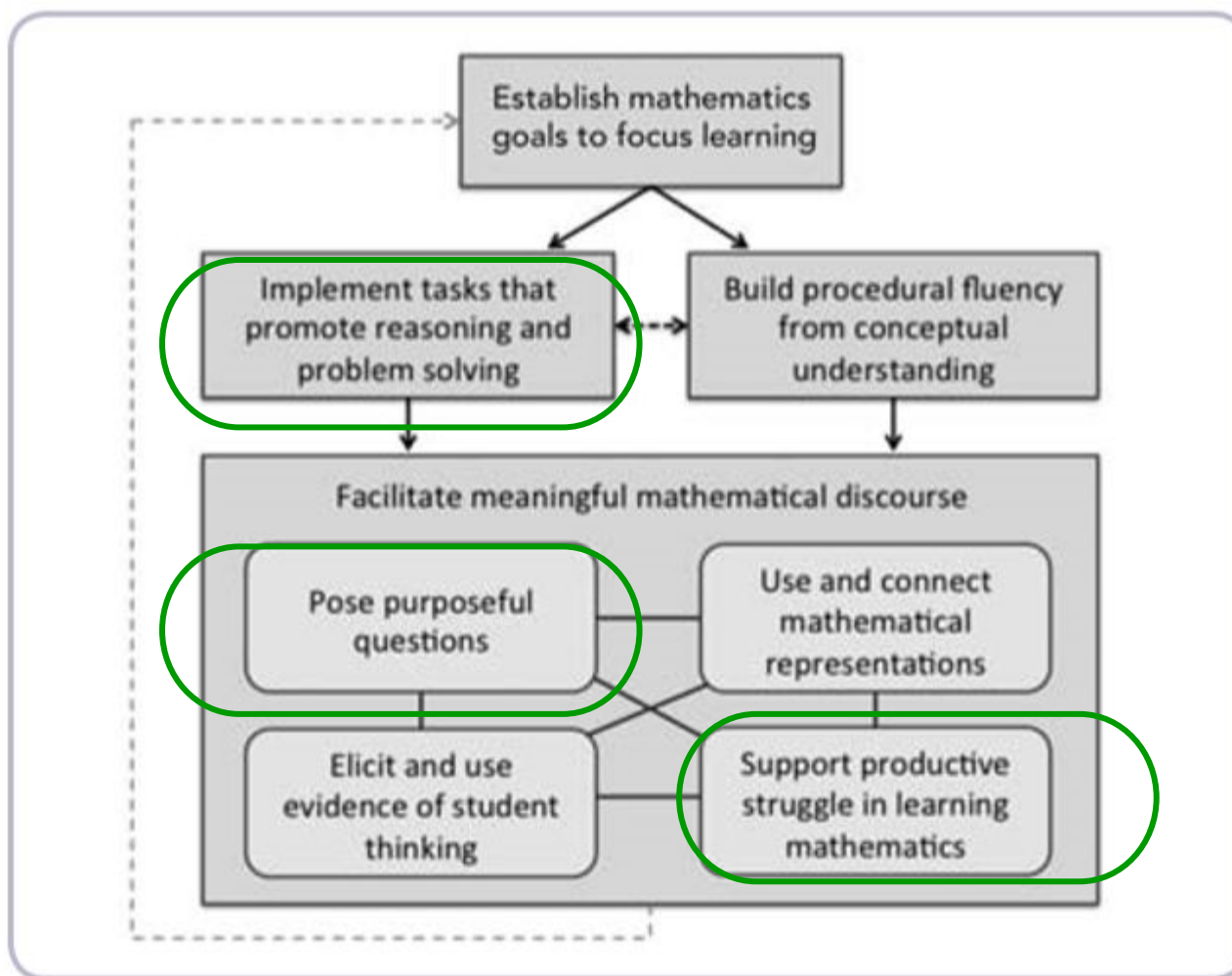


Fig. 10.1. A framework for mathematics teaching that highlights the relationships between and among the eight effective teaching practices



Key Features

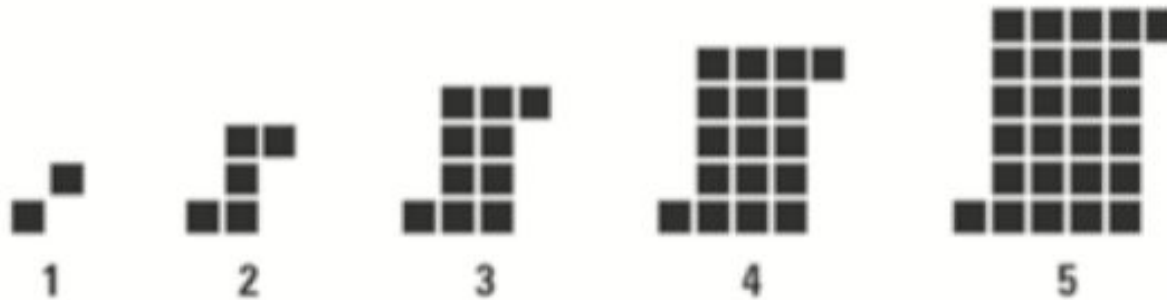
Analyzing Teaching and Learning (ATL)

activities invite the reader to actively engage with specific artifacts of classroom practice (e.g., mathematics tasks, narrative cases of classroom instruction, video clips, student work samples).

Taking Action in Your Classroom provides specific suggestions regarding how a teacher can begin to explore specific teaching practices in her or his classroom.

Tasks

The S-pattern Task

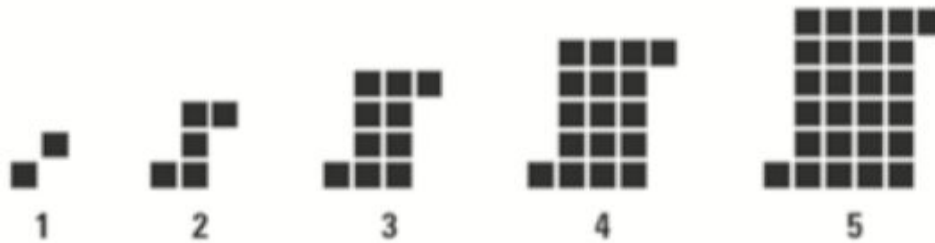


1. What patterns do you notice in the set of figures?
2. Sketch the next two figures in the sequence.
3. Describe a figure in the sequence that is larger than the 20th figure without drawing it.
4. Determine an equation for the total number of tiles in any figure in the sequence. Explain your equation, and show how it relates to the visual diagram of the figures.
5. If you knew that a figure had 9,802 tiles in it, how could you determine the figure number? Explain.
6. Is there a linear relationship between the figure number and the total number of tiles? Why or why not?

Adapted from Foreman and Bennett (1995).

Support Productive Struggle

The S-pattern Task



1. What patterns do you notice in the set of figures?
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Adapted from Foreman and Bennett (1995).

What are ways to support productive struggle in completing high ceiling task?

Questions



Assessing Questions	Advancing Questions
<ul style="list-style-type: none">• Based closely on the work the students have produced• Clarify what the students have done and what they understand about what they have done• Provide information to the teacher about what the students understand <p><i>Teacher STAYS to hear the answer to the question.</i></p>	<ul style="list-style-type: none">• Use what students have produced as a basis for making progress toward the target goal of the lesson• Move students beyond their current thinking by pressing them to extend what they know to a new situation• Press students to think about something they are not currently thinking about <p><i>Teacher WALKS AWAY, leaving students to figure out how to proceed.</i></p>

Fig. 5.4. Characteristics of assessing and advancing questions
(Developed by Victoria Bill and Margaret Smith 2008)

Representations

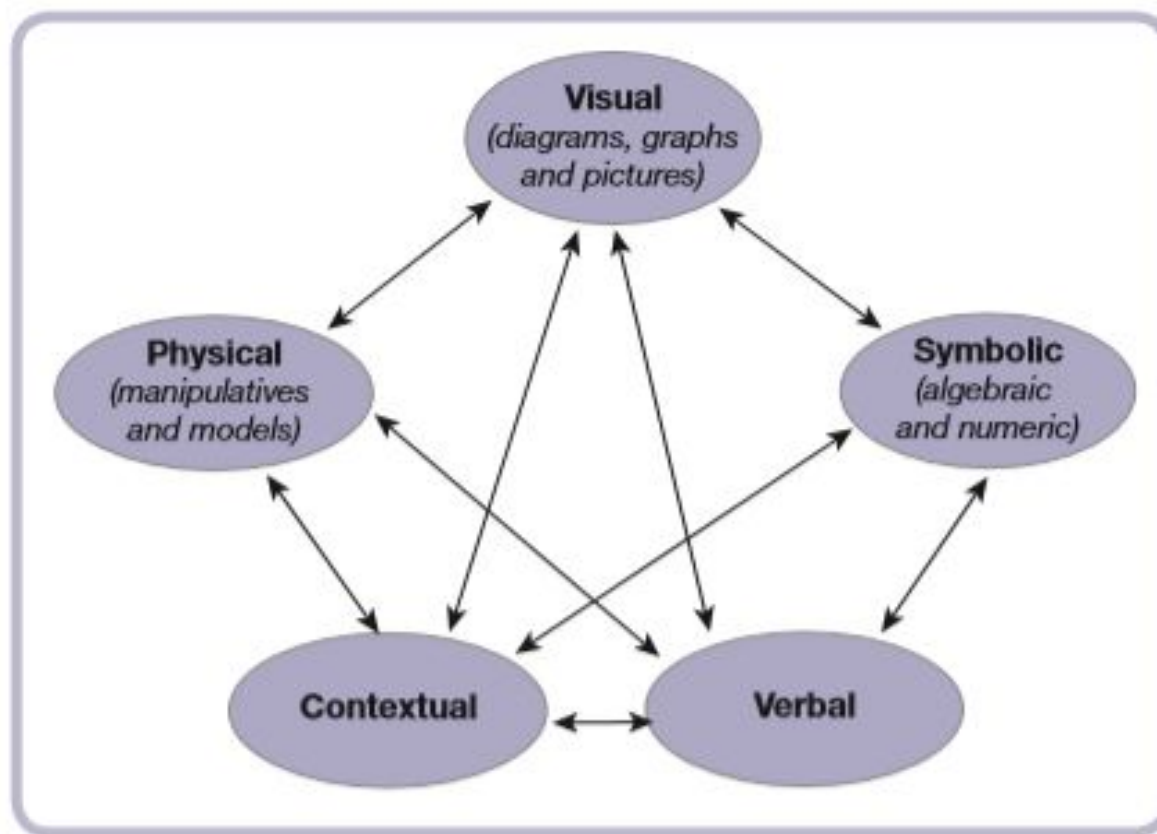


Fig. 6.1. Different representations and the connections between them
(Adapted from NCTM, 2014, p. 25)

Equity

Go deep with mathematics. Develop students' conceptual understanding, procedural fluency, and problem solving and reasoning.

Leverage multiple mathematical competencies. Use students' different mathematical strengths as a resource for learning.

Affirm mathematics learners' identities. Promote student participation and value different ways of contributing.

Challenge spaces of marginality. Embrace student competencies, value multiple mathematical contributions, and position students as sources of expertise.

Draw on multiple resources of knowledge (mathematics, language, culture, family). Tap students' knowledge and experiences as resources for mathematics learning.

Fig. 1.2. The Five Equity-Based Mathematics Teaching Practices
(Adapted from Aguirre, Mayfield-Ingram, and Martin 2013, p. 43)

Favorite Quote

“Develop students’ conceptual understanding through visual models, representations, and drawing on students’ prior knowledge before moving to more formal methods and procedures”.

KCM Favorite



To order visit NCTM [website](https://www.nctm.org/)

KCM Favorite

APRIL 20 - 24
2:00-2:30 PM EST



KCM Favorites!

w/ KY Math Leaders

Monday, April 20 - Thinking Together- 9 Beliefs for Building a Mathematical Community

Tuesday, April 21 - Routines for Reasoning: Fostering the Mathematical Practices in All Students

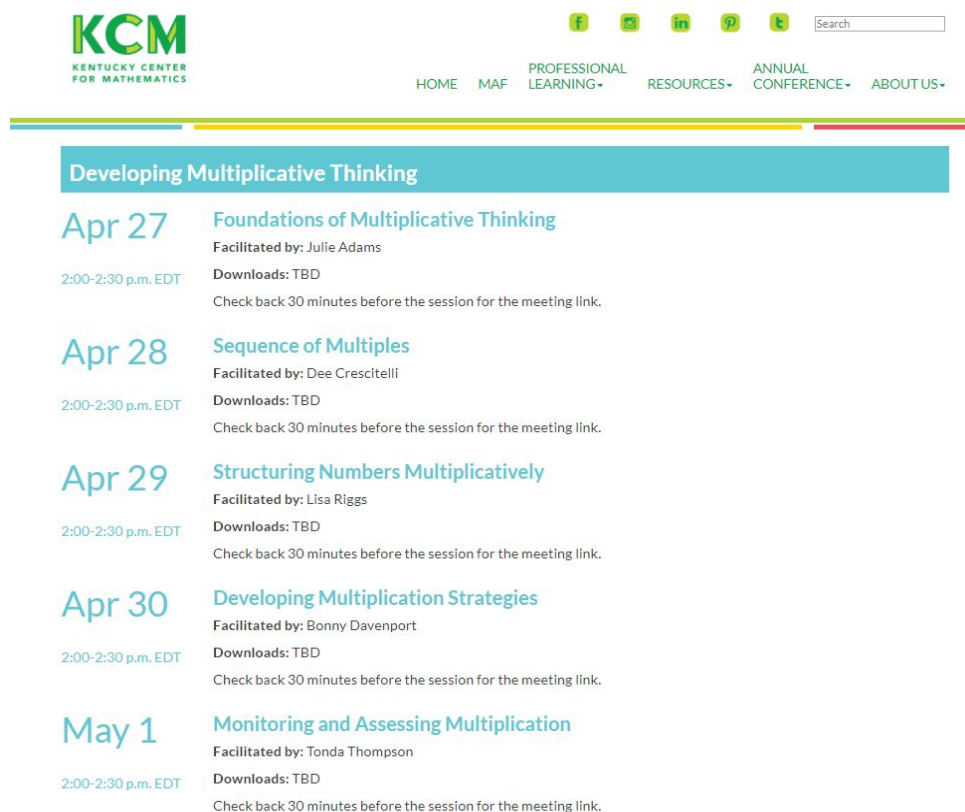
Wednesday, April 22 - Developing Number Knowledge

Thursday, April 23 - Math Fact Fluency

Friday, April 24 - Taking Action Implementing Effective Mathematics Teaching Practices Grades 9-12

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Search

Developing Multiplicative Thinking

Apr 27 2:00-2:30 p.m. EDT	Foundations of Multiplicative Thinking Facilitated by: Julie Adams Downloads: TBD Check back 30 minutes before the session for the meeting link.
Apr 28 2:00-2:30 p.m. EDT	Sequence of Multiples Facilitated by: Dee Crescitelli Downloads: TBD Check back 30 minutes before the session for the meeting link.
Apr 29 2:00-2:30 p.m. EDT	Structuring Numbers Multiplicatively Facilitated by: Lisa Riggs Downloads: TBD Check back 30 minutes before the session for the meeting link.
Apr 30 2:00-2:30 p.m. EDT	Developing Multiplication Strategies Facilitated by: Bonny Davenport Downloads: TBD Check back 30 minutes before the session for the meeting link.
May 1 2:00-2:30 p.m. EDT	Monitoring and Assessing Multiplication Facilitated by: Tonda Thompson Downloads: TBD Check back 30 minutes before the session for the meeting link.



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KCM is here to support you!

Contact me



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