Differentiate and Deepen Classroom Math Talk

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Note: The following principles and discussion types are taken from “Intentional Talk: How to Structure and Lead Productive Mathematical discussions by Elham Kazemi and Allison Hintz (2014).

Introductions

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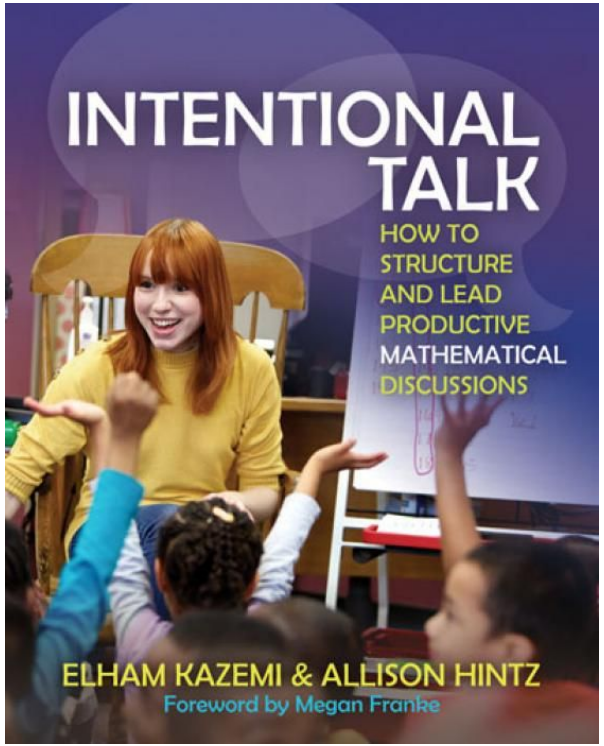
Math Discourse in Our Classroom

- **Two number talks Monday-Thursday in parallel co-teaching model; students groups homogeneously.**
- **Teachers plan and execute separately for the week.**
- **Teachers reflect and respond as a team each day.**

- **Number Talks with all students and teachers participating as needed.**

Intentional Talk - NCTM 2016



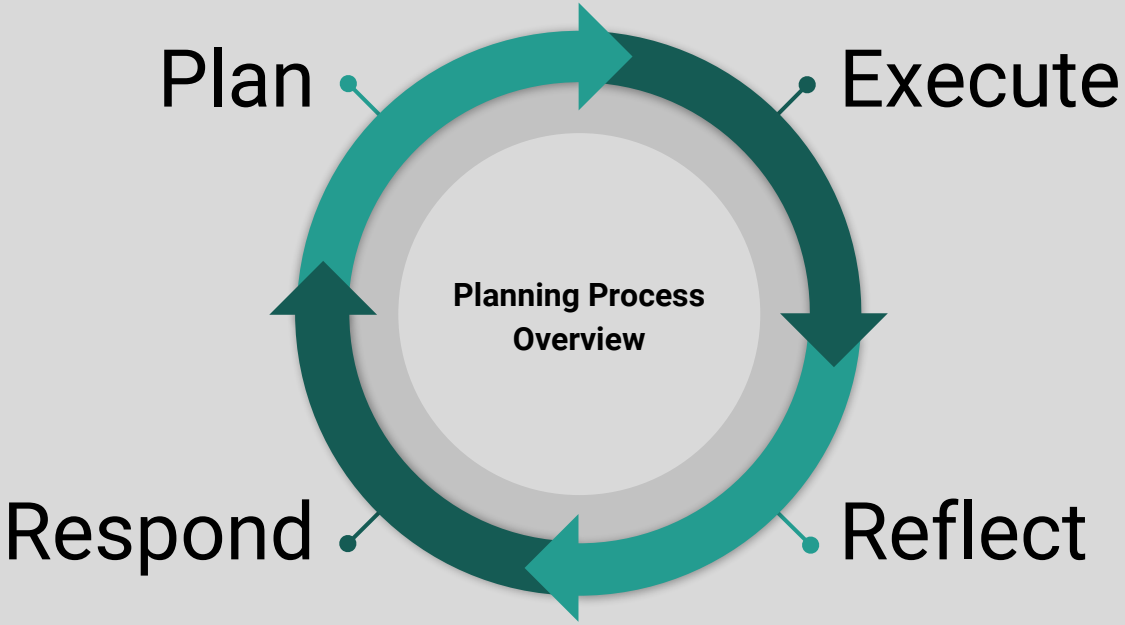
Making Math Talk more meaningful for teachers and students.

- Planning
- Implementing
- Examples

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Planning Process



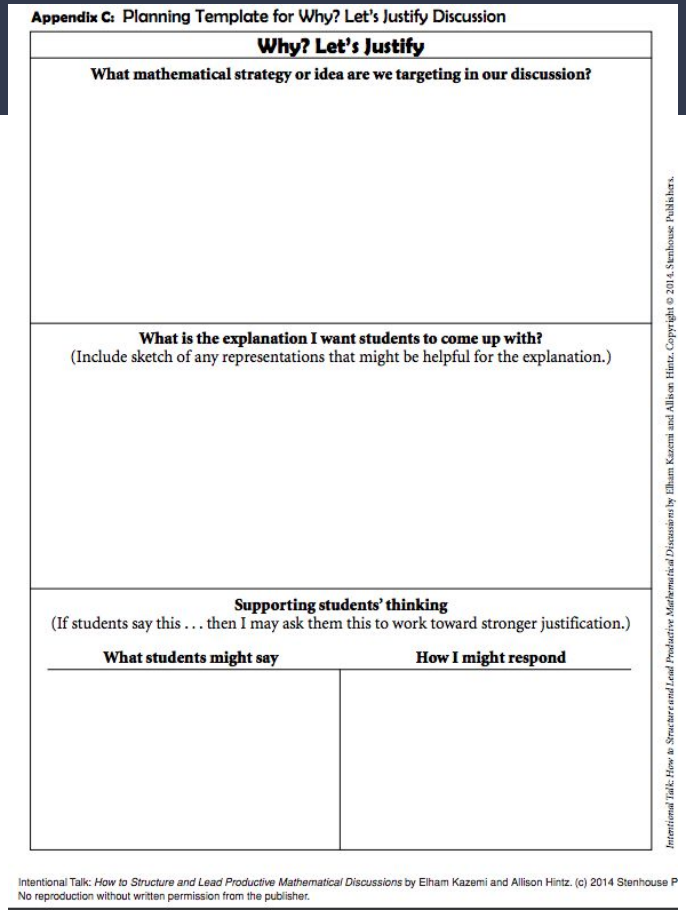
Overview of Discussion Planning Templates

Start here!

Appendix A: Planning Template for Open Strategy Sharing Discussion

Open Strategy Sharing		
Problem to pose		
Why I chose this problem		
Opening the lesson		
How might my students solve this problem?	**Who solved it this way?**	**Who should share today?**
Notes to myself about what I'm looking for		
Other strategies that emerged during the lesson		
Closing the lesson		

Overview of Discussion Planning Templates



Appendix C: Planning Template for Why? Let's Justify Discussion

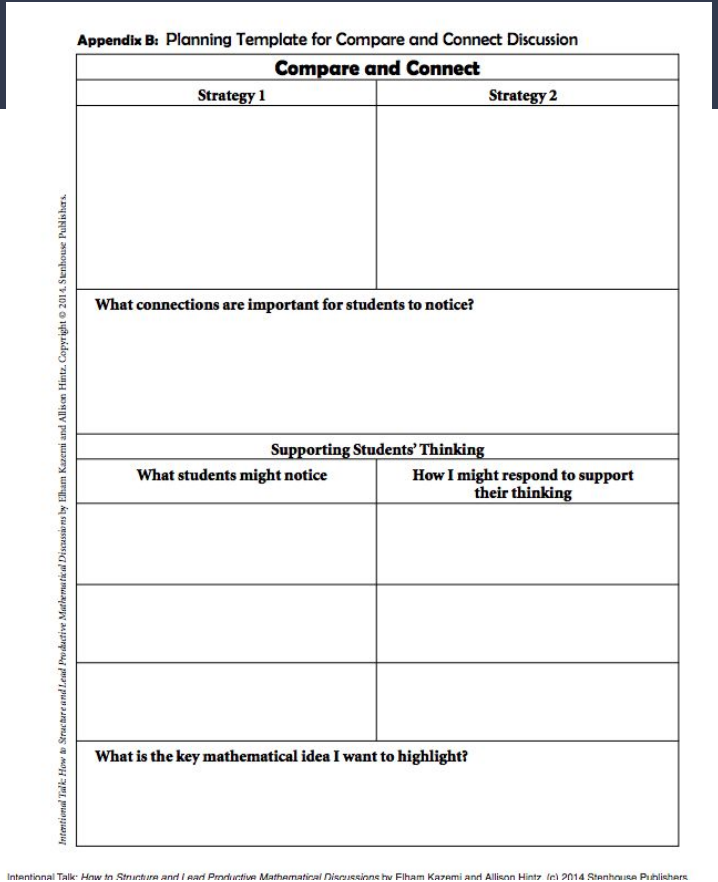
Why? Let's Justify

What mathematical strategy or idea are we targeting in our discussion?

What is the explanation I want students to come up with?
(Include sketch of any representations that might be helpful for the explanation.)

Supporting students' thinking
(If students say this . . . then I may ask them this to work toward stronger justification.)

What students might say	How I might respond



Appendix B: Planning Template for Compare and Connect Discussion

Compare and Connect

Strategy 1	Strategy 2

What connections are important for students to notice?

Supporting Students' Thinking

What students might notice	How I might respond to support their thinking

What is the key mathematical idea I want to highlight?

Overview of Discussion Planning Templates

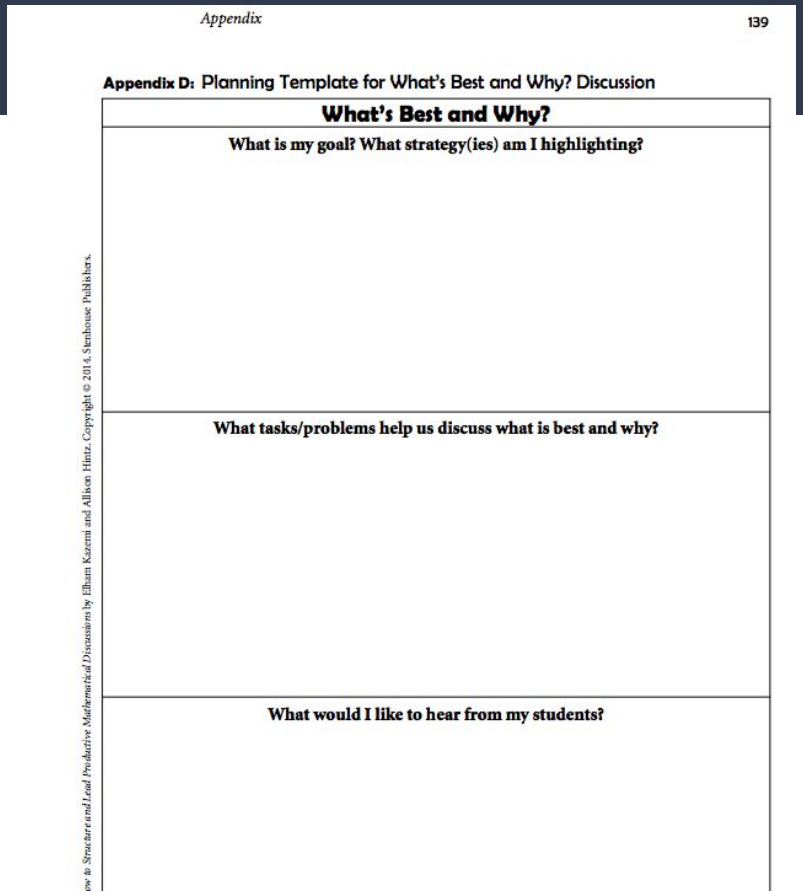
Appendix E: Planning Template for Define and Clarify Discussion

Define and Clarify
What new tool, representation, symbol, or vocabulary are we targeting in our discussion? Is this new to the students or are they using it in a new way?
What problem or task are we working on? How will I support meaning making? What partial understandings might arise?

Appendix F: Planning Template for Troubleshoot and Revise Discussion

Troubleshoot and Revise
What is the confusion or misunderstanding we will discuss and revise?
What is the insight I'd like students to understand?
Problem context, diagrams, or questions that might be useful to use during the discussion
Exit ticket

Overview of Discussion Planning Templates



Appendix D: Planning Template for What's Best and Why? Discussion

What's Best and Why?
What is my goal? What strategy(ies) am I highlighting?
What tasks/problems help us discuss what is best and why?
What would I like to hear from my students?

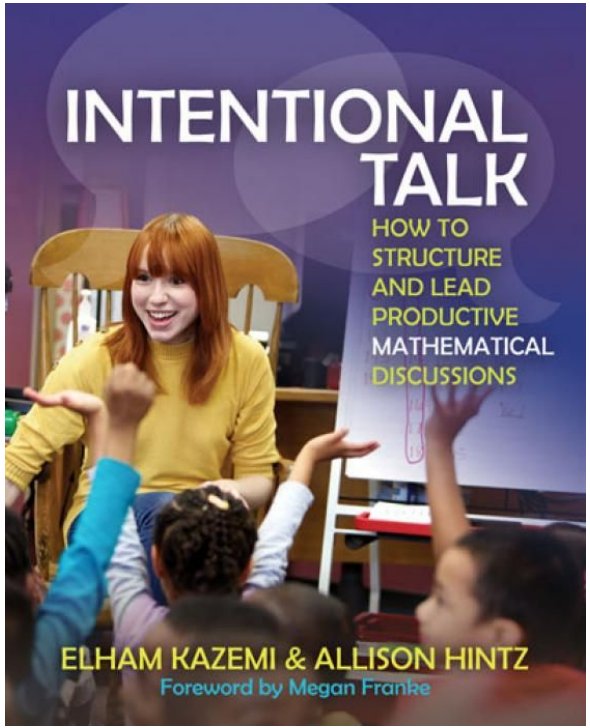
Action Steps

- Co-teach (Don't have one? Ask your coach to be your co-teacher)
- Partner with neighboring classrooms (vertically or in same grade level)
- Pull invitational groups and do two different number talks.
- Reach out to us, we would love our students to collaborate through technology!

Resources to Start Math Discussions
(SOURCE: https://www.tabletalkmath.com/resources.html

Between 2 Numbers - Comparing two values using prompts that will get kids thinking
Clothesline Math - All you need is a little bit of string, some paper, and a pen. The rest is all conversational
Counting Circles - A way to have quick and meaningful math-based conversations
Daily Des What should the graph look like? Take a peek here, and stay for the discussion
Math Arguments 180 - Plenty more than 180 prompts that incorporate math into the argument
Math Mistakes - Want mistakes? There is an unending supply of them in here
Math Riddles - Find one, try one, and get a good kick out of it
Math Talks - Some are simple, some are complex, but all are centered around talking about mathematics
Math Visuals - Oftentimes, the best way to understand a problem is to see it
Open Middle - What if I took the middle of the problem away and let you create something of your own?
Play With Your Math - Fun math challenges for learners of almost any age
Same or Different? - What's the same about these? What is different? Check it out in here
SolveMe Mobiles - Mobiles aren't just for cribs anymore; these ones are all here to help us with math
Talking Math With Kids - In general, talking math with your kids is going to help; here is a good place to start
Visual Patterns - Math helps us understand patterns, and this site has plenty of them
Which One Doesn't Belong? - There are four objects in the group; which one of them doesn't belong?
Would You Rather? - Here are some options; which is the better one and, more importantly, why?
YouCubed - Hey, it's good to read the research behind what we're doing (and a whole lot more)

Estimation 180 - Multi-Lesson estimation problems



Check out the book on Amazon.com!

Video from the Authors

THANK YOU!

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