

CHAPTER 3: Mathematicians Take Risks

We're about to get a lot more specific. My hope is that the opening chapters started conversations and set the tone. Now we're ready to focus on one habit of mind at a time. We'll begin by sitting in on classes as teachers engage students with more obviously mathematical content. We'll analyze specific teacher moves and actions that create conditions for powerful mathematics learning. And we'll look at the results through student dialogue and work.

I ramped up the content gently on purpose, knowing some portion of the readership may feel nervous. My first priority is not to shut those readers down. If some of your colleagues have been chomping at the bit to get to meatier examples, I hope that, by the end of this chapter, they'll have felt challenged and provoked. The sophistication will continue to rise from here on out.

Discussion Questions

Page 30 Discuss or write about the paragraph that starts, "On the inside, I was angry." What do you make of my speculation that Mr. Duncan felt his authority and expertise were under attack? Have you been in Mr. Duncan's shoes? How did you handle it?

Page 31 Discuss or write about obedience versus risk taking in mathematics. What came to mind when you read this passage? What are you thinking now? What new questions do you have?

Page 32 What do you make of my assertion that it's immaterial if the mathematics that students are grappling with has been settled by other mathematicians? Discuss or write about the statement, "Whether or not other mathematicians have had the same idea before is *completely irrelevant to that student.*"

Page 32 Have you ever complained that your students won't try? What patterns have you noticed? What strategies have you tried?

Page 45 The downsides of the words *smart* and *easy* keep emerging. Discuss or write about how you might change your usage of these words.

Page 49 How does Shawn leverage his role as a teacher and a leader to encourage risk taking?

Page 49 Teachers who encourage and nurture students are often framed as wishy-washy, loose, or lax. How does Shawn's example influence your thinking about this caricature?

Page 50 Does your curriculum encourage mathematical risk taking or does it preclude it?

Page 50 What do you make of the distinction between mathematical risks and social risks? Does it ring true to you?

Page 51 Discuss or write about the implications of students' unplanned risks. What can you do to gain comfort with students' unexpected risks? How might you plan your lessons so you'll be able to react positively and think on your feet, while still meeting your objectives? For example, if you'd been Melanie Wood's teacher, how might you have reacted supportively?



CHAPTER 3: Mathematicians Take Risks (continued)

Page 53 If you teach multiple subjects, does the culture and your vision of teaching and learning vary with the subject? Perhaps dig into that question with your colleagues a bit.

Activities**Pages 33-36 Heidi's Transcript**

Analyze the transcript from Heidi's classroom. What teacher moves did Heidi make? What do you think her goals were for those moves?

Pages 39 Play with 10

This is a good chance to engage in your first book-related mathematical play together. It's a gentle introduction, by design, but the openness of the task can lead you anywhere you want to go. What do you notice about each other's work?

Pages 41-43 Cindy's Student Work

Analyze Cindy's students' work as a group. What do you notice about their mathematical thinking? Be sure to dig into the math itself. What ideas are students working on? Also, what do you notice about Cindy's comments?

Calls to Action**Page 44 Feedback Language**

Choose or adapt language from Cindy's comments to try in your teaching. You might want to rehearse this language with your colleagues or on your own so it becomes more natural. How will you incorporate it in your teaching? Oral feedback? Written comments? Once you try it, report back to your colleagues. What did you notice? How did it impact you? Your students? Tell me what you try at tjzager.com.

Pages 51-53 Make It Safe

Choose an item or two out of the table. Pick ones that resonated with you. Can you set yourself a goal, try it in your teaching, and reflect on it? Can you come back together with your colleagues and discuss or write about what you learned? I invite you to tell me about it at tjzager.com (Chapter 3).

Additional Resources

At stenhouse.com/becomingmathteacher and at tjzager.com, you'll find a collection of supplemental resources that may come in handy for further thinking and discussion. I keep the links fresh, so the contents will change, but you will certainly find:

- A useful, shareable summary of Carol Dweck's research
- Shawn Towle's quote collection
- A link to Herbert Kohl's powerful essay "I Won't Learn from You"

