

## CHAPTER 2: What Do Mathematicians Do?

In Chapter 2, I shared informal action research my colleague Debbie Nichols and I conducted with her primary students. As a coach, I shared this work and engaged in these activities with the larger staff. I found that introducing Deb's unit as something practical teachers could try with their students to launch math class or to create positive norms for math class gave me just enough buy-in that teachers were willing to give it a go. It's important we honor how busy teachers are, and how important it is to engage in activities that feel relevant to their work. At the same time, it's essential we open (and keep open) the larger discussions around our identities as mathematicians, our understanding of the discipline of mathematics, and our framing of mathematics for our students. This mini-unit was definitely tipped toward the larger discussions, but it was just practical enough that they were willing to try.

Therefore, the staff did all the activities described in this chapter. They read the picture books. They played with the mathematical Internet. They reflected on what they were learning about what mathematics is and what mathematicians do. Most staff realized that this time spent on the larger context was time well invested, because it gave them a framework for all the obviously practical, more sophisticated teaching strategies to come.

### Discussion Questions

**Page 9** Before reading the chapter, discuss how you would answer the question, *What does it mean to be good at math?* How might your students answer? Written reflection might be productive as well.

**Page 10** What have you observed about how students use the phrase “This is easy” in your classrooms? What has been the effect?

**Page 12** What have you noticed about language—either from teachers or peers—that deflates the positive climate you want to create? Have you noticed similar trends to what Deb and I saw? What do you think about students' responses when we opened the conversation?

**Page 23** Discuss or write about Atticus's response to the *Fruit by the Foot* play. What was he afraid of? Why? What can we do to alleviate that fear?

**Page 28** Discuss or write about the last section of the chapter, in which I talk about the connection between the unit and the rest of the year. We commonly post inspirational posters or say words that sound encouraging but send very different messages with our actions. We need to become aware of and reflect on this tendency so we can change it.

You might spark a lively discussion by sharing an example of this dissonance: an “inspirational” poster about curiosity alongside a mind-numbing worksheet would do nicely. This is a provocative conversation to facilitate, and it's essential your tone is reflective and self-aware rather than judgmental or critical. If you can share an example from your own practice, all the better. You want to position yourself as a learner among your colleagues, one who is also working to bring your actions and your messages into alignment.

### Activities

**Page 18** **Children's Books Jigsaw**

Get your hands on as many copies of these books as you can. Since Deb and I did this work, I've learned of a strong fifth book, Kathryn Lasky's *The Librarian Who Measured the Earth*. Feel free to add that one in as well.



**CHAPTER 2: What Do Mathematicians Do? (continued)**

Set up a jigsaw structure with your colleagues. Take a few moments to introduce each book to everyone, and then ask them to choose the most appealing book. They should read it with a colleague and talk. When they've finished, have them reshuffle into groups so every book is represented. Ask participants to take a few minutes to talk about what stood out to them during the reading.

Throughout, focus people's attention on the essential questions:

*What do mathematicians do?*

*What does it mean to be good at math?*

*What is mathematics?*

It's helpful to emphasize the *verbs* in the books. What do mathematicians do? Come together and discuss or write about the verbs Debbie's children used (Figure 2.1, page 20 in the text) as well as the verbs that struck teachers.

**Page 25**    **Internet Wealth**

Take a good chunk of time together to investigate the online resources that appeal most, such as Math Munch, Numberphile, Vi Hart, and the Math Photo challenge ([tjzager.com](http://tjzager.com) or [stenhouse.com/becomingmathteacher](http://stenhouse.com/becomingmathteacher)). You might each share a quick (two to five minutes each) favorite find. It's helpful to project the site, not just talk about it.

**Page 27**    **Scavenger Hunt**

Ask participants to choose an everyday object that they see mathematically and bring it to the next session or share photographs of it through social media. Engage in a gallery walk and open-ended discussion about what people notice and wonder. You might want to host a Math Photo challenge for your school or district (see the Chapter 2 resources at [tjzager.com](http://tjzager.com) or [stenhouse.com/becomingmathteacher](http://stenhouse.com/becomingmathteacher)).

**Calls to Action****Page 13**    **Taking on Language**

I invite you to open a similar conversation with your students around words such as *easy, hard, fast, slow, right, wrong*, or around the question, *What does it mean to be good at math?* If you can, record the audio or video, and then transcribe or summarize it. What did you learn? Share with your colleagues and/or online in the "Becoming the Math Teacher You Wish You'd Had" chapter discussions at [tjzager.com](http://tjzager.com) (Chapter 2). You can comment directly or share a link to your blog post so other readers can learn from your experience.

**Additional Resources**

At [stenhouse.com/becomingmathteacher](http://stenhouse.com/becomingmathteacher) and at [tjzager.com](http://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 video of Maya and Daphne (my kids) discussing what they found on their scavenger hunt
- All the websites mentioned in this chapter
- A few articles about babies and math, if the mentions of those studies piqued your interest

