

# Foreword

Why did you become a teacher?

Was it, as with many elementary teachers I've worked with, because you loved kids? Perhaps even at a young age you were an effective caregiver, and you knew how to care for more than just another person's tangible needs. You listened, and you made people feel *listened to*. You had an eye for a person's value and power. You understood where people were in their lives, and you understood how the right kind of question or observation could propel them to where they were going to *be*.

Spending a few decades helping people feel heard, helping them unleash and use their tremendous capacity—perhaps you thought that was a worthwhile way to spend what you thought would be the hours between 7 AM and 4 PM every day.

How do the demands of teaching mathematics affect your love for students?

Perhaps you *love* math and you're grateful for the opportunity to help students experience math as you have. Or perhaps you're fearful of math and you're able to relate to students who feel the same way. In either case, what I have learned in my work with math teachers is that it is impossible to separate your love for your students from your feelings about and knowledge of mathematics. Both sources of your energy—students and math—are vital. Neither source is renewable without the other. The teachers who struggle to love their students as people will struggle to help them learn mathematics. The teachers who struggle to love mathematics miss out on opportunities to express their love for their students as people.

If teachers draw their energy only from mathematics, for example, their students can become abstractions and interchangeable. They can convince themselves it's possible to influence *what students know* without care for *who they are*, that it's possible to treat their *knowledge* as deficient and in need of fixing without risking negative consequences for their *identity*. But students know better. Most of them know what it feels like when the adults in the room position themselves as all-knowing and the students in the room as all-unknowing. Your love for and understanding of mathematics are no help at all when students have decided you care less about them than about numbers and operations.

On the other hand, if teachers draw their energy only from students, then the day's mathematics can become interchangeable with any other day's. Some days, it may feel like an act of care to skip students past mathematics they find frustrating or to skip mathematics altogether. But the math that teachers skip one day is foundational for the math another day or another year. Students will have to pay down their frustration later, only then with compound interest. Your love and care for students cannot protect them from the frustration that is often fundamental to learning.

What is needed, of course, is love for students *and* mathematics. I could share with you any number of maxims and slogans that testify to that truth. I could perhaps convince some of you to believe me. But still that would not answer the key question: How?

My answer: anticipate, monitor, select, sequence, and connect.

Those actions, initially proposed by Smith and Stein in 2011, and ably illustrated in this book with classroom videos, teacher testimony, and student work samples, support a teacher's love for students and a teacher's love for math in ways that make both math and students matter.

For teachers who are motivated by a love of students, those five practices invite the teacher to learn more mathematics. The more math teachers know, the easier it is for them to find value in the ways their students think. Their mathematical knowledge enables them to monitor that thinking less for *correctness* and more for *interest*. Would presenting this student's thinking provoke an *interesting* conversation with the class, whether the circled answer is correct or not? A teacher's mathematical knowledge enables her to connect one student's interesting idea to another's. Her math knowledge helps her connect student thinking together and illustrate for the students the enormous value in their ideas.

And if you are also motivated by a love of mathematics, and want students to love mathematics as well, those five practices offer a way to connect your students as people to the math they produce. Students are not a blank screen onto which teachers can project and trace out their own knowledge. Meaning is *made* by the student. It isn't *transferred* by the teacher. The more teachers love and want to protect interesting mathematical ideas, the more they should want to know the meaning students are making of those ideas. Those five practices have helped me connect student ideas to canonical mathematical ideas, helping students see the value of both.

Neither a love of students nor a love of mathematics can sustain the work of math education on its own. We work with *math students*, a composite of their mathematical ideas and their identities as people. The five practices for orchestrating productive mathematical discussions, and these ideas for putting those practices into practice,

offer the actions that can develop and sustain the belief that both math and students matter.

You might think your path into teaching emanated from a love of mathematics or from a love of students. But it's the same path. It's a wider path than you might have thought, one that offers passage to more people and more ideas than you originally thought possible. This book will help you and your students learn to walk it.

—Dan Meyer  
Chief Academic Officer, Desmos

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