

# ● ● ● Foreword ● ● ●

When we talk about being “fluent in mathematics,” what do we really mean? We know it’s something we all want for our students, but do we know what it really looks like in practice? Does it look like a student being able to complete a set of flashcards in a certain amount of time? Is it quick and correct answers to basic addition or multiplication facts? Is it watching a child do mental mathematical gymnastics? In reality, real fluency is more complex, more nuanced, and actually more beautiful than that.

In this book, the authors describe their own journey toward understanding what fluency means and what it is—a journey that was neither straightforward nor direct. This resonated with me. My own trip to math fluency is similar to Jenny’s and John’s. My guess is that yours probably started off the same as well.

I grew up during a time of speed drills at the chalkboard, playing *Around-the-World* with flashcards, and staying in at recess if you didn’t have your times tables down. I was good at memorizing facts, so I was good at all those drills. I also grew up at a time when teachers tended to stand in front of the board and show us how to solve problems using algorithms. I was good at mimicking, which helped me get the right answers on tests. Thanks to all of this, I thought I was good at math. I thought I was fluent.

When I started teaching, I continued the tradition of teaching-by-telling. I stood at the front of the classroom and made my students learn the procedures from the textbook. I gave timed tests. I used flashcards. I had my students pull out the numbers from a story problem and then use the key words I had asked them to memorize to figure out what operation to use. I made my students stay in at recess if they hadn’t completed their “multiplication sundae.” I thought I was helping them gain fluency.

The problem was that my definition of “fluent” was incorrect. By focusing on helping my students memorize and regurgitate the steps I had taught them, maybe I did help some kids get faster at getting answers. But what I also did was create the belief in their minds that math equals memorization; if you aren’t good at memorizing, then you can’t be good at math.

It wasn’t until I was earning my master’s degree that things changed for me. I was introduced to a “new way” to teach math. I put that in quotes because it was new to me, but it had been around for a long time. Even now, we hear people say “new math,” but actually, people have been thinking about math in this “new” way for a really long time.

Once I was introduced to this new way, it changed everything for me. I started to see that I wasn’t good at math—I was good at arithmetic. I was good at following directions that were laid out for me in the form of mathematical procedures, similar to how I can adeptly follow directions to build IKEA furniture. Being able to assemble a Billy Bookcase does not make me fluent at building furniture.

My own personal view of my ability to “do math” changed from that traditional view of math to one of being flexible with numbers, understanding why things worked, and being able to think through problems to get correct answers. This is what it means to be fluent in math.

Thinking back to our understanding about fluency—particularly, procedural fluency—what have we believed about fluency that’s actually not true? What do students need to know to be considered procedurally fluent? How do we make practice fun and engaging? How do we assess fluency without using timed tests?

All those questions and more will be answered as you go through this book. These authors have spent their careers on a mission to help give consistent guidance on how to develop true fluency for students. My own change in how I teach math was greatly influenced by the work they have done (Jenny’s work on the *Teaching Student-Centered Mathematics* books and John’s work on the Howard County Math website, in particular). I’m excited that all their years of experience and research are coming together in this book to give practical advice that will get us all on the same path to building and sustaining fluency for our students.

So consider this book your travel guide for your trip to procedural fluency in math. Jenny and John lay it all out for us so that we know what this trip entails. It is a road map that can help us move beyond the path of doing worksheets and drills with only a focus on the answer. It gives us alternative pathways that focus on developing thinking and reasoning to get to that same destination.

This work can seem overwhelming, so Jenny and John make it manageable. They start at the beginning by showing some foundational understandings that students need and then share how those build into Seven Significant Strategies kids use when operating with numbers. These strategies go far beyond the basic facts we often associate with the word “fluency.” Through the use of games, activities, and routines, the authors offer practical alternatives to worksheets and timed tests—actions that will truly help students build and assess their own fluency.

In this book, you will see how smooth and connected building fluency really is, from basic facts all the way through to fractions, decimals, and even algebra. You will find your head nodding in agreement. And as you put these ideas into practice, please recognize that it isn’t easy, and it will take time. I’ve been trying to recover from my traditional ways of teaching math for 20 years now. It’s hard to change something that is so deeply rooted, but it is so worth it.

It’s time the narrative around fluency gets changed. You have the power to change it for yourself and for your students. Jenny and John guide you on the path to make that change through this book.

—Christina Tondevoid

The Recovering Traditionalist