



## An Interview with Stuart!

### What is MathStart?

The MathStart books are about telling stories using pictures, words and math. Pictures are important because many children are visual learners. They learn new concepts and new ideas more easily through diagrams and models than through text and numbers alone. Words are important because kids like stories. Stories are a way to demonstrate mathematical ideas in contexts that kids care about and show how math is used in their own lives. Math, of course, because understanding and enjoying mathematics is an essential life skill. ([click here for more on the MathStart series](#))

### Why focus on younger kids?

Our kids don't do as well in math as we would like them to—or as they're capable of doing. If we can give them a better footing—the background and experience they need to deal with math concepts at an earlier age—then these skills will be a lot easier for them to master. It's about math fluency. It's kind of like learning a new language: The younger you are when you're exposed to the basics, the more likely you'll pick it up naturally.

By familiarizing young children with some of the concepts that they'll be responsible for learning in the later elementary school years—and making math fun—we're helping them to become more comfortable with math.

### "Math = Fun!"??? Really?

When I use the phrase "Math = Fun!," it's my way of helping kids avoid the barrier that goes up when they are made to feel that math is a difficult subject. I don't for a minute think that math is just a bunch of fun and games. In fact, in my books the math is rigorous and



challenging. But by putting math in situations that kids can enjoy and relate to, they ease up about it and say, "Yeah, I can do this!" Math is often taught in school as a separate subject. "Math time" is when you *do* math. And when you're in the rest of your life, you don't do math. Of course that's not true. In real life you use math all the time. There shouldn't be "math anxiety"—that awful feeling that *"I've got so many problems to solve!"* Instead, kids should feel, *"Hey, I can have fun with math! I can do this."* So by putting mathematics in contexts like amusement parks, buying ice-cream, going to a farm or being in camp—things that kids can relate to and enjoy—I think they see math as a more enjoyable subject.

**At the end of each MathStart book, you include two pages of suggested activities for adults and kids to bring math concepts into their daily lives.**

**Are the books then really just the beginning of the fun?**

The real learning takes place when children are able to apply what they've learned in the books to real-life situations. You don't want kids to think that bar graphs only have to do with selling lemonade. You want them to see that the situation in [\*Lemonade for Sale\*](#) is just one example on how they can record information and compare data using bar graphs. So the idea is for kids, after reading the books, to then have the experience of taking what they've learned and applying it to different settings.

One of the things I like to do in school situations is to organize the kids in little teams of four or five and say, "Look, we've got a very short amount of time. I want you to quickly collect data about something." And it could be anything. It could be the number of dogs and cats they have. Or the number or the ages of their sisters and brothers. Or it could be about their favorite ice-cream flavors. Then they come up with a way to graph that information and explain it to the rest of the kids in the classroom. That kind of exercise has a lot of things going for it: The teams have to make quick decisions about what data they're going to collect. The kids then collect the data themselves and communicate it to other people, both visually and verbally. The magic is that the kids believe in it because the data are about them! It's really about them. In essence they're sharing their own stories using pictures, words and math.

**You've said that while young kids may be new to reading, they are experienced "see-ers." Can you explain what Visual Learning is?**

Visual Learning is about gathering information and learning from visual stimuli: charts, graphs, diagrams, pictures, colors. We "read" a tremendous amount of information visually—everything from road sign diagrams and leaf colors, to photographs and facial expressions. And with the explosion in media—print, television, computers—we're absorbing more information than ever visually. This is especially important to understand in terms of kids, who are growing up processing tremendous amounts of visual information. It has become part of their everyday language. So, if we're trying to teach them new ideas, we should try and speak to them in that language. We should take advantage of and use this marvelous capability of theirs.

**Each of the MathStart books focuses on a different skill. Are skills such as timelines, comparisons and opposites really math?**

People tend to think immediately about numbers when they think about math. How many times have you heard someone say, "Oh, I've never been good with numbers!"? In fact, math is not just about numbers. It's about making comparisons and estimates, identifying patterns, using probability, and figuring out capacity and perimeter. It's about critical thinking. It's all connected. Pattern recognition helps kids later with skip-counting, which leads to understanding multiplication.

Patterns are an important basis for a lot of mathematical understanding. If you start out with a pattern of "red / blue / yellow," "red / blue /yellow" — what comes after that? What comes next? And after that? You start seeing how patterns can help you come to mathematical understandings more quickly and easily. It's not a very big leap from "red, blue, yellow" to a number pattern: 5, 10, 15, 20. What comes next? What comes after that? Or 2, 4, 6, \_\_, 10. What's the missing number?

In the **MathStart** series, you might start with a book like [\*Beep Beep, Vroom Vroom!\*](#), which is about color patterns, then move on to [\*Spunky Monkeys on Parade\*](#), which is about skip counting (counting by 2's, 3's and 4's). Then you could try [\*Too Many Kangaroo Things to Do!\*](#), which is about multiplying and expanding from the visual model of counting to the visual model of multiplication.

It's very important, of course, to learn the key number concepts of addition, subtraction, multiplication and division—and to master those. But it's also critical to apply those skills to other areas that are important mathematically, and that are representative of real life situations.

For example, estimates are not just guesses. Estimates are about analyzing something and coming up with a reasonable answer, whether it's the size of a crowd or how many jelly beans are in a jar ([Betcha!](#)). In real life you might not say, "I'm going to stop and multiply now." But you might say, "H'mmm, I wonder how long it's going to take me to get there?" And the same kinds of math skills will come to bear.

### **So while the books relate to each other over the three different levels, each has a special focus?**

Each book deals with a unique skill, but the different skills are often related. For example, two related skill areas that kids often have trouble with are perimeter and area. I found I could work better with young children if I separated them: [Racing Around](#) for perimeter, and [Bigger, Better, Best!](#) for area. The kids can put the concepts together after they get to understand them individually.

I have a book called [Give Me Half!](#), which is about "half-ness." A lot of people have asked me why I stopped at halves. The common thing to do after cutting a pizza in half would be to cut it again to show quarters, and again to show eighths. Well, if you've lost them at halves, you won't have them at eighths. I can assure you of that! But if they really understand that "half-ness" means both sides are about the same size or, if it's half of a quantity, that both groups have about the same number of things, then they're not going to have trouble with understanding "third-ness." They'll know that the three pieces should be about the same size, or the three groups should have about the same number of things. Suddenly, to get them to do "eighth-ness" and "sixteenth-ness" is not all that difficult. But if we just drum them through the fractions without, in fact, really letting them understand what "half-ness" is, it can be very hard for them.

I have another book called [Henry the Fourth](#), which is about ordinals: first, second, third and fourth. It's about order and learning that order is relative—it depends on where you start. Those are abstract concepts for kids: They have to take counting numbers—one, two, three, four—and

convert them into first, second, third, fourth. They also have to learn the numerical representations: 1st, 2nd, etc. I stopped at "fourth" because I found that if I could get kids to really understand their ordinals through fourth, then their ordinals through 25th—or even through 130th—were not that hard because they understood how the system worked.

### **Did you always like math?**

Children always wonder about that. Actually, I didn't like math much when I was a child. My favorite subject was art. I liked to draw all the time. Still do. My next favorite subject was reading and making up stories. I was one of those kids who talked all the time. In fact, I sometimes would get into trouble for talking and telling stories and drawing in school. I also liked geography because I loved maps, which are, of course, visuals. And somewhere way down the list was math. It just seemed like one of those things that you were supposed to learn. And it struck me that if you could do the first problem in a set, you could probably do them all. And if you couldn't do the first problem, then you probably couldn't do the rest of them either. So why bother? I just didn't really get into the magic of math.

It wasn't until quite a bit later, somewhere near the beginning of high school, that I started realizing that you could do math with pictures and visual models; and that you could do math by thinking of it in terms of a story. Since pictures and stories were my two favorite things, I started realizing that there were different ways to look at mathematics that could make it much more interesting and challenging and enjoyable to me.

### **How did you get the idea for the MathStart series?**

After I graduated from Art school (Rhode Island School of Design), I began working in educational publishing as an art director. I was struck by how much careful attention was paid to the text, while pictures were regarded as being more decorative and supportive. They weren't seen as a learning vehicle in and of themselves. But when I worked with kids, I realized that they wanted to look at the pictures and often paid very little attention to the words. So I thought, "Something's wrong here..."

I became interested in [Visual Learning](#) and embraced it as a way to make sure that pictures and illustrations were not only carrying as much of the learning load as possible, but that the attention to quality was as rigorous as with words.

About 12 years ago, I was brought on board as a Visual Learning author for a new series of high school math books. I spent three and a half years working closely with a team of 11 math educators from all over the country. We would get together and not just talk about ideas, but visualize them. I began to think that if I could put some of this material into contexts that kids cared about, and provide them with clear visual models, then maybe they could more easily learn new mathematical concepts.

For example, when we worked with so-called "reluctant learners" in high school, we tried presenting math in the context of new car colors, or school dances, or clothing, or motorcycle racing, or wind-surfing. Suddenly they were interested in the outcome. And they would work very hard to learn how to come up with the answers, often doing math that was far more advanced than they'd normally be asked to do at their level.

That led me to think, "Well, o.k., what if we did that with younger kids? How could we get kids turned on from the very beginning?" And that led to the idea of presenting mathematical concepts within the context of stories for young children.

**Unlike most other series, each of the MathStart stories is a "stand-alone" with a unique set of characters. The books even have different "looks" because you've used so many different illustrators. Why did you take this approach?**

Right up front we decided that each book should be its own experience. Now that we've got this many books in the series I suppose one could look backwards and think that maybe it would have been wiser to have a common character—an Arthur or a Clifford or somebody—running through the books so the series would be easily recognizable as one thing. On the

other hand, in my heart of hearts I believe we made the better decision because I believe they're better learning tools for kids this way. Each story is its own story, illustrated by its own illustrator, and isn't dependent on another one of the stories. You can appreciate and know each group of characters for themselves. So it's really been counter to the popular wisdom that we would, in fact, people these books with so many different kids and characters created by so many different [illustrators](#). But I think it makes them better books.

### **Do you test out new stories on kids?**

I've always used kids as my test market—my nieces and nephews, my neighbors' kids, and my own children when they were kids. Now, I have two grandchildren, Jack and Madeleine, and they are becoming sources for ideas. And there are all the school children I meet. They also provide inspiration. They show me what's in their backpacks. They empty their pockets for me. Stuff like that. I look at what they're reading, and ask them what they're thinking. In the process I get ideas about what kids are interested in. A lot of my ideas come from these very simple conversations.

[Dave's Down-to-Earth Rock Shop](#) is a story right out of the lives of my very own children. It's a real shop in Evanston, Illinois, where we lived for 23 years. Behind every one of my stories there's something like that, some starting point.

I take notes all the time. Some of them are pictorial notes, little sketches. And some of them are verbal notes. And some of them all mush together: pictures, words and math.

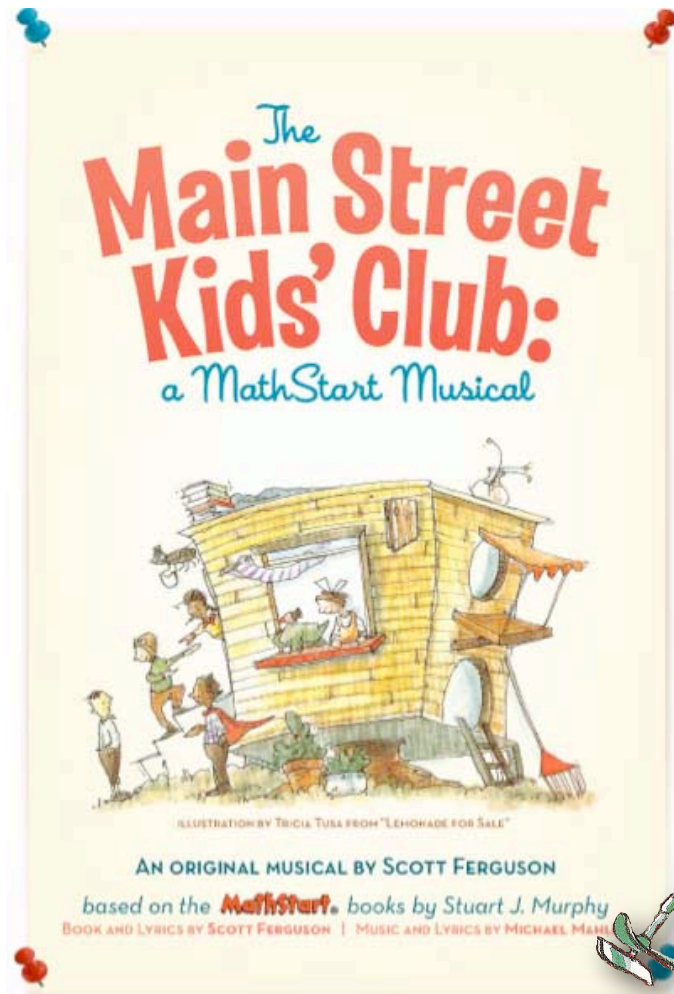
### **What's your favorite book?**

The first book in the **MathStart** series is called [The Best Bug Parade](#). I tell kids that it's my favorite because it was my first book! It was the first time I ever saw my name in the front of a book. Do you know how that makes you feel? Very, very good!

I originally thought that **MathStart** was going to be a series of 12 books. I couldn't tell anyone that because it sounded too implausible to even think it. I had a contract for one book and had in mind a series of 12 books. In truth, it just bowls me over to know that there are 45 books, and even more on the way. Every Spring and Fall, the series grows by another 3 books!

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