



EDUCATOR TRAINING & DEVELOPMENT

What Our Teachers Say

*"Spirit of Math teachers work with students, helping them to break down their misconceptions, guiding and encouraging them to accept new challenges. Teachers can then run with the students until they reach fruition."*

Spirit of Math Teacher

*"My experience with the Spirit of Math, thus far, has been both a challenging and a positive one. Since beginning SMS back in September, my feelings surrounding mathematics have begun to change in a positive way. Although only three months have gone by, and although I still have a long way to go on my learning journey, I am already experiencing feelings of personal growth and increased confidence in the areas of drills, problem solving, planning and pedagogy. For once, I am beginning to feel 'math-smart'."*

*I can confidently say that the SMS and its components is something that I wish I could have been immersed in twelve years ago, when I first began teaching. I really could have benefited from such programming both personally and professionally."*

Spirit of Math Teacher

*I first found the Spirit of Math through a student of mine. I had been working on education tutoring and working at private school for a while, and I saw how the Ontario curriculum was so weak on a lot of aspects. I encountered many things along the years, for example, that kids that were taking calculus didn't know their multiplication tables. They didn't know seven times eight. That was my impression of the educational system in Canada, or Ontario overall. Then when I found this student and I saw that she was working with the Spirit of Math material. I thought, wow. Somebody actually is doing what the whole system should be doing, which is actually teaching kids mathematics."*

Spirit of Math Teacher



## History and Development of Spirit of Math's Training Programs



### 1993 - 2001

All courses taught by the Founders. The Founders were asked to consult to private schools and the North York School Board (now the Toronto Board of Education).

### 2001

Teachers hired part-time and full-time to work with Spirit of Math. The Drill Books and processes for drills created.



### 2003

Formal teacher training programs for Spirit of Math implemented.



### 2005

Workshops for public and private schools first offered.



## Early Training Days at Spirit of Math



During the very early days of Spirit of Math when Co-Founder Kimberley Langen first starting hiring teachers, she thought that providing them with good content in the form of student worksheets would be enough for them to prepare for class and to conduct a good lesson. What she quickly realized was that intensive training would also have to be provided to teachers as they were missing foundational skills and understandings for teaching. After watching many teachers for hundreds of hours, Kimberley was able to identify where the difficulties and misconceptions arose, noting many common threads. Once those critical components that created the biggest impact for students were identified, teachers became

much more effective. This led to an intensive teacher and principal training program for Spirit of Math educators. This program combined a blend of mathematical knowledge, targeted development of teaching skills, and effective pedagogy practices. When other public and private schools saw the strength of these teachers, they asked Spirit of Math to help educate their own teachers with some of the same methods.

## Blending Knowledge and Understanding with Practice and Feedback in a Group Setting



The complete teacher training program consists of a mathematics and pedagogy stream. The foundational understanding of numeracy and mastering numeracy skills is the first stage for the mathematics

component, and is followed by the fundamentals of problem solving. The pedagogy program consists of units covering topics such as behavioural psychology, complexity of thinking, classroom routines, dynamic and cooperative group work learning experiences, questioning techniques, and more. Teachers not only study these ideas and methods, but Spirit of Math also believes that a teacher must practice these methods in front of their peers while being provided with constant feedback until their skills are strong and consistent.

## Foundational Ideas



Teachers are facilitators of learning, but are not the only ones from whom students learn in a classroom. Students who are allowed to discuss ideas with each other in a meaningful, purposeful manner will learn an enormous amount more than

those who just wait for the teacher to provide all the learning. Teachers guide a student's thinking to develop a sense of discovery, then purposefully consolidate the understanding, ending in ways to challenge and stretch the thinking of the students using a variety of classroom settings. When you combine strengths of both the students and the teacher, the end result is a dynamic classroom setting where students are powerful facilitators of learning. Students are independent thinkers, able to make excellent decisions on the spot, know how to hold each other accountable, and are willing to take risks to solve problems that appear to be unsolvable. The end result? Students who have the skills to do the math and are able to be innovative.



## Problem Solving and Algebra

"When I hear that a student has learned algebra at a very young age, I get worried. Algebra is a very linear quick process and is relatively easy to teach compared to the process of teaching problem solving," states Kimberley Langen. "Why race to teach young children algebra when they could be learning how to problem solve? When a child learns how to enter into problems and become a good problem solver at a young age, then he/she will become a divergent thinker. Afterwards, algebra is very easy to add to that thinking. My experience working with students who learn algebra first, is that it is much harder to teach these students the thinking required for problem solving because they just want to use the linear thinking of algebra. Therefore, it is critical that divergent thinking be taught at a young age, and an opportunity to develop that type of thinking be given before entering into the realm of algebra."

“When the genius in a teacher is released, then they start to believe in themselves. When they believe in themselves, then they can show that they believe in their students. When a teacher believes in students then students will believe in themselves. It is when this happens that children release the genius in others.”

K. Langen | CEO & CoFounder of Spirit of Math Schools