

The STEM experience

Finding the school where your child's interest in science, technology, engineering and math can thrive

ERIC EMIN WOOD Town Crier

oanna Severino knows firsthand how difficult it can be to find the right school for a child who's already started counting ducks, experimenting with vinegar and baking soda, or asking how a computer works.

Before her son Nathan, now nine, started junior kindergarten he was already demonstrating an apititude for the so-called STEM subjects — Science, Technology, Engineering and Math. But as the owner of PREP-SKILLS, a private tutoring company that connects parents across the city with private and independent schools and universities, Severino also knew that a school advertising a STEM program meant little more than someone on its marketing team being familiar with a buzzword.

And so, with a list of contacts, criteria, and Nathan in tow, Severino began researching and visiting independent schools, looking for the right STEM program to accommodate her son.

"Number one, I wanted an elementary school experience for him," she says. So any school with classes above Grade 8 was out.

Her second most important criterion was finding a school that would encourage Nathan's energetic, inquisitive — and easily bored — method of learning. She found it at the Sterling Hall School, a JK to Grade 8 all-boy's private school in the city's Yorkdale neighbourhood.

"Being a teacher myself for nearly 20 years, I really do believe that boys and girls learn differently," Severino says. "I didn't set out looking for an all-boys school, but it was definitely the right fit for Nathan at the time."

It's important to note that Severino wasn't convinced at first: One of the first elements of Sterling Hall that she noticed were the beanbag chairs in the classrooms.

"I'm not a huge proponent of that kind of free-for-all, wander-the-room-and-do-asyou-please sort of environment," she says.

But in actually observing some classes, Severino soon learned that not only did Sterling Hall provide relaxing elements in its classrooms, but structure as well.

"They've been able to mesh the two worlds together really nicely, so there's that structured time of 'sit in your seat,' and then that free element where you can go ahead and read over there," she says. "It's a nice balance that works really well, and especially for someone like Nathan, who really thrives in getting that intellectual challenge."

Sterling Hall mathematics coordinator Nimisha Keswani would likely applaud Severino's decisions: she suggests that parents researching private and independent schools for their STEM-inclined students how a school's academic programs meet the needs of different learners.

"They need to know how the school they send their children to is going to address a visual learner, or a kinesthetic learner, or an auditory learner, or I have a boy who just Continued on next page





8:30-11:00 a.m.

OCTOBER 2015 EDUCATION GUIDE TOWN CRIER 7

Continued from previous page can't sit still and needs to be lying down on the floor with his workbook," she says.

At Sterling Hall, which developed a unique approach to math in 2012, students from junior kindergarten to Grade 5 follow a version of the Singapore math curriculum, a teaching method that teaches pupils to learn and master fewer mathematical concepts than traditional instruction, but in greater detail, using an active, three-step learning process.

For Sterling's take on the program, the



• OPEN HOUSE: October 21 and October 24





You can't change the wind...but you can adjust the sails.

Achieving below potential?

- Attention Span is Short
- Distractibility
- Difficulty Organizing & Completing Work
- Impulsivity
- Learning Difficulties
- Asperger's Syndrome
- Concussion



boys are divided into small groups of around

with the boys sometimes grouped with other

eight students each. The groups are fluid,

students who match their abilities, and at

component in a five-part lesson.

other times with students of differing abili-

ties. Finally, the groups are rotated between

multiple teachers, each of them teaching one

The first component, Keswani says, is

daily collaborative problem solving, during

which the boys are encouraged to ask ques-

tions. The second is daily mental arithme-

tic, which she says provides the boys with

Neurofeedback plus coaching in Learning Strategies can provide a lasting improvement in learning. Research results are available.

Director: Dr. Lynda M. Thompson (416) 488-2233 Co-author with pediatrician Wm. Sears of *The A.D.D. Book* www.addcentre.com



8 TOWN CRIER EDUCATION GUIDE OCTOBER 2015

a crucial foundation needed for math classes beyond Grade 5.

The third component is "a directive lesson, which for boys who are active and can't really sit still for too long, we make sure is contained to 15 or 20 minutes max," she says.

The fourth is an activity involving games or partners; and finally the fifth component is independent practice, during which teachers can monitor how each boy is progressing individually, and the boys who learn more slowly can receive help from their advanced peers.

"It's been really successful," Keswani says. "The boys seem to really love it because it's very active, but still allows

them to build a lot of their knowledge and creative learning."

One other suggestion she offers to parents is that they make sure the communication line between home and school is strong.

"We offer literacy and numeracy information sessions to parents in the evenings, just to teach them the things they can do to make sure all the great learning that's happening in class isn't lost when they go home," she says.

One of the key reasons STEM has come to the forefront of modern education is the lack of women in jobs involving science, technology, engineering and math, with studies showing that what begins as an equal number of boys and girls interested in math and science gradually tapers until women are holding less than 20% of computer science or engineering degrees, and fewer still have related jobs.

In response to this worrying trend, North Toronto all-girls' school Havergal College has become a leader among Toronto secondary schools in integrating STEM into its classes, while its junior school was one of the first in Toronto to hire a STEM coordinator: Darryl Reiter, a former geophysicist who helps Havergal's teachers incorporate science, technology and math into their lessons.

"There are so many domains within science, you can't expect all of your teachers to have familiarity with everything," Reiter says. "Having somebody with a background in science, who can remember the difference between igneous, metamorphic and sedimentary rocks and how to identify them, really makes the learning experience more authentic for the kids, I think."

In addition to rocks and minerals, Reiter has helped Grade 4 teachers give lessons in pulleys, gears, and habitats; Grade 5 teachers with lessons involving structures, matter



HANDS ON: Junior school STEM soordinator Darryl Reiter works with Grade 2 students at Havergal College on their growth and change in animals unit. PHOTO COURTESY SUSAN PINK/HAVERGAL COLLEGE

and energy, and the biology of the human body; and Grade 6 teachers with lessons on electricity, biodiversity, space and flight.

"They're such great topics," he says. "The kids are so inquisitive ... and they're at the age where they can ask good questions and you can have deep conversations."

But he keeps going back to the rock and mineral example, because a 22-acre campus makes hands-on lessons in the subject particularly easy.

"We have these amazing grounds with a whole variety of these rocks," Reiter says. "So we'll go outside the classroom to look at them."

University of Toronto Schools science department coordinator Anand Mahadevan does a lot of outreach with parents, and says that whether they choose to send their child to his school or not, he always encourages them to make sure they enroll their child in a failure-friendly program, especially if they're focusing on science.

"The best place to fail is in the classroom, because then you've got people who can actually help you figure out how to succeed," he says. "Once they know failure is an option, they become more comfortable raising questions."

And as any good scientist (or science enthusiast) knows, the backbone of good science is a constant willingness to ask questions.

"It's really kind of fun to give students the resources they need and say, 'you know what? If you really want to know more about HIV/AIDs, or you're interested in this particular plant that's used in Indian culture and its effects on cancer, then let's help you find out what you want to find out," Mahadevan says. "That's usually when they're like, 'wait a minute. I need to learn how to actually do measurements. I need to learn scientific design. Can you help me do this?' And then you're golden."