



NCSSM students celebrate their successes at NUSHS, the host of the SIMC competition. From right, Bryce Taylor, Akash Ganapathi, Matt Jordan, Damien Jiang, Christine Ye, and Katheleen Lan. Two Singaporean guides stand to their left. • Photo courtesy of Matt Jordan

## Students win high honors in Singapore math contest

### Teams use graph theory to write Starbucks-killing strategy

BY ALEX LEW

Four seniors and two juniors returned victorious from Singapore on Friday after participating in a competitive international mathematical modeling contest. The six students were split into two teams: one team, consisting of seniors Akash Ganapathi and Christine Ye and junior Matt Jordan, tied for second place, and the other team, consisting of seniors Damien Jiang and Kathleen Lan and junior Bryce Taylor, were in the top half of all participants.

With 60 teams from over 33 schools and 17 countries, competition is always fierce at the biennial Singapore International Mathematics Challenge. For two and a half days, small teams of

students attempt to come up with creative solutions to real world problems using any math they know, from algebra to graph theory. At the end of the working period, teams turn in their final papers and make 15-minute presentations to the judges.

This year, the problem was coffee. "We were given a graph representing some city blocks in Singapore, and we were told to find the optimal location of a Coffee Bean franchise such that it would draw more customers than the preexisting Starbucks locations," Jordan explained. Most teams used graph theory to find a solution, treating each possible location as a vertex and the streets as edges. "We worked under a few assumptions—mainly that the population was evenly

distributed," Jordan said. "Since population will then be proportional to the length of the street, you want to cause as many streets to be closer to the nearest Coffee Bean than to the nearest Starbucks."

Jordan's team's solution, which used what is known as a greedy algorithm to find the best location in a reasonable amount of time, received the "Distinction Award" given to the twelve teams that tie for second place. Only the champions receive a higher award.

More than math, Jordan said the team enjoyed experiencing a new culture and getting to know the other competitors from around the world.

"The event was hosted by the National University of Singapore, and all the

competition events were held at their affiliated high school, very similar to NCSSM, but on the other side of the world," Jordan said. "We were led around by other high school students. They were incredibly nice people who showed us what Singapore was really like. Singapore was immaculate. It was a brilliant country. No dirt, no littering, totally clean. They had heavy fines for breaking any of the rules, so most people obeyed the rules."

Students toured the island in small groups, consisting of other competitors from different schools. "In addition to being very satisfied with how we did mathematically, I really liked how the program was run and how it emphasized networking," Jordan said. "They forced students to meet

others from around the world, which allowed us to form friendships with people from several continents."

The teams were led by math teacher Phillip Rash, and the students were chosen collectively by the math department. The seniors had taken the Mathematical Modeling course at NCSSM, and juniors were chosen based on promising performance in their math classes.

"Honestly, I figured there was some sort of mistake since I had never done math modeling prior to this, but I ran with the opportunity," Jordan said.

In addition to Jordan's team's Distinction Award, NCSSM's other team received a Commendation Award, given to the top half of participants.

## Author Sarah Dessen to Speak at Graduation



• Photo courtesy of sarahdessen.com

BY AVANI UPALAPPATI

NCSSM is excited to hear from popular North Carolina author Sarah Dessen at commencement this year. We asked Dessen a few questions about her own experiences as a

teenager.

**In high school, what kinds of activities were you involved in?**

I have to admit, I wasn't much of a joiner. I loved to read, and to hang out with my friends. But I didn't partake in a lot of activities.

Now, though, I sort of wish I had, as high school is a great time to try new things and find out what

you like. Life gets busy later and you don't have time!

**What are some of your favorite memories/experiences from high school?**

I loved my writing classes.

They were a great escape for me. I'd write stories and my friends would pass them around between classes to each other. They were my first audience. And I was writing about us, in a lot of ways. I think I still am.

**You write a lot of Young Adult books - what appeals to you about the genre?**

I honestly sort of fell into it. My high school experience wasn't great, and once I graduated I figured I'd never think about it again. But once I was in college, I realized I had all these stories to tell. I was always the one who remembered everything, and when I started writing things down, there was a real connection to the voices I found. High school, to me, is a time filled with so many changes, so many things happening. There's a lot of material there, which is probably why I keep coming back to it.

**Where do you get the inspiration for your stories?**

Some of it is from my own experience. But more often than not, it begins because I'm

thinking about something that didn't happen, and wondering what would have been different if it did. Fiction based solely on truth tends not to be too interesting, at least not when I'm writing it. I need to start from the ground up and really see the story. So I usually am inspired by things I see or remember, and then build a novel from there.

**How do you perceive education - what does it mean to you?**

My parents are both professors who met in grad school. And my brother has his PHD, as well. Education was always a huge thing in my family. It was the ticket to everything: the future, your dreams, making anything possible. The day I graduated from UNC was one of the best of my life, and I credit the writing program there with making me into a writer. Without that experience, and my amazing professors there, I don't know where I would be.

**Before you were asked to be our graduation speaker,**

**what did you know about NCSSM?**

Because I went to Chapel Hill High School, I've always known about NCSSM. I knew people who went there and had been to speak at the library. The students are clearly the best of the best, so it's a little intimidating to think that I'm supposed to give them advice. I don't feel qualified! But I will do my best.

**Do you have something you want to tell us - something we graduating seniors, and the soon to be seniors should keep in mind?**

In my speech, I really want to talk about how life doesn't always go the way you plan or want, and that's okay. The failures, trip-ups and mistakes are what make unique as much as our accomplishments. Life is big. The best you can do is just live it.

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