

Eyes on the Prize

Passion, Dedication Drive Students' Success

By **Symone C. Skrzycki**

"The important thing is not to stop questioning ..." – Albert Einstein

Boning (Bo) Han is proud of the H5N1 (Bird) virus research project he and Lauren Stevens presented at an international competition.



Booming China. Exotic Honolulu. These are two places Boning (Bo) Han called home before moving to Indianapolis seven years ago. Across the globe from Han's birthplace in Asia, Sachin Dilip Shinde was born and raised in Terre Haute. Their paths crossed when an impressive collection of educational achievements – and perhaps most importantly, a commitment to challenging themselves – helped them earn the 2010 Hoosier High School Math and Science Awards.

In May, Gov. Mitch Daniels named (then) high school seniors Han "Indiana Mr. Science" and Shinde "Indiana Mr. Math" during surprise presentations at North Central High School and Terre Haute South Vigo High School, respectively. Shinde is one of three South Vigo students to be honored since the program was created in 2008. He is the only repeat winner (see graphic on Page 84).

What set these individuals apart from 200-plus candidates? For Han, a project involving the H5N1 (Bird) virus – which took him to the heart of Silicon Valley for an international competition – played a major role. Meanwhile, Shinde was recognized for, along with other successful endeavors, his contributions as a researcher in the optics department at Rose-Hulman Institute of Technology.

Among criteria were course grades, SAT and ACT scores and competition performance. Judges included teachers (high school and college level) as well as math and science professionals. Each award recipient received a \$2,000 academic scholarship from McGraw-Hill Education.

Cause and effect

Han and a friend spent most of their senior year collaborating on a project entitled, "Evolution of the H5N1 Virus."

"We examined some mechanisms," he explains. "One was just gradual mutation and the other was re-combination with other viruses. Those are some of the ways it can evolve, and one of the reasons it can be so dangerous is because it can evolve so rapidly."

Their hard work paid off.

After taking top honors in the senior division at the Central Indiana Regional Science and Engineering Fair earlier this year, the pair traveled to San Jose, California (it was an all-expense paid trip) to compete in the Intel International Science and Engineering Fair.

The five-day event is the world's largest pre-college science fair and the only global science competition for high school students.

"It was pretty amazing," Han recalls. "There were people from 59 other countries, so there were about 1,500 people there. It was really cool to see the wide variety of what they had done."

Han also performed well in the classroom, earning perfect scores on the SAT II chemistry and biology tests as well as advanced placement exams. In addition, he garnered all "A's" in his high school science courses and graduated as valedictorian.

When *BizVoice*® spoke with Han, he was eagerly preparing to head to Harvard University and pursue a major in biology or chemistry (individuals don't have to declare majors until their sophomore year).



Sachin Dilip Shinde (pictured with Gov. Daniels, his parents and Terre Haute South Vigo High School Principal Chris Mauk) earned the Mr. Math award two years in a row.

“Right now, I’m keeping my options open,” he comments. “I’m thinking about having a medical practice.”

Carl Gibson, chair of the North Central High School science department, met Han in an accelerated physics class.

“One of the endearing things about him is that he’s a very modest person,” Gibson declares. “He’s not a person whose going to try to ‘over advertise’ himself, and in this day and age where it’s all bluster and things like that, he’s a nice change (of pace). I think for that reason, he’s going to go far. People will see he’s the ‘real deal.’”

A keen eye

Like Han, Shinde has built a successful portfolio of accomplishments. They include being named a Siemens Advanced Placement Award state winner in 2010, placing first in the Indiana Council of Teachers of Mathematics math contest for three consecutive years and answering all questions correctly on the math sections of the SAT and ACT. Plus, he received “A’s” in all college-level mathematics courses (a total of seven) completed during his high school career.

When speaking with Shinde, it’s immediately apparent how much he values his stint as a researcher at Rose-Hulman.

“It was really interesting,” he asserts. “You learn a lot more by going through that (as opposed to textbook instruction alone). I think most high school students should try to do some research. It opens your mind to a lot of different opportunities involving your favorite subjects and (helps) you see how to apply your expertise.”

At the time of this interview, he was looking forward to attending the Massachusetts Institute of Technology, where he hoped to double major in computer science/ electrical engineering and biological engineering, as well as minor in physics.

Reflecting on what the title of “Mr. Math” means to him, he observes, “It’s not so much about (winning) the award. Now, students are seeing that math has value in the real world.”

Jerry Woodward, a Purdue University mathematics K-12 outreach coordinator, participated on the panel that chose Mr. Math.

“Sometimes it’s hard for students to see the relevance of things they’re doing in the classroom. One of the benefits (of Shinde’s hands-on lab experience) is that right away, he can see how he can use mathematics in the future,”

Woodward emphasizes. “I think the other big thing is, it shows us how getting students involved in projects where they’re using their mathematics skills can help them keep an interest past the secondary levels as they move into careers.

“A lot of times we have these kids who are really good at math in high school and they don’t always carry on ... so that’s important.”

Past Winners

2008

Mr. Math: Samuel Dittmer, senior, Zionsville Community High School

Ms. Science: Swara Kopparty, senior, Terre Haute South Vigo High School

2009

Mr. Math: Sachin Dilip Shinde, junior, Terre Haute South Vigo High School

Mr. Science: Raj Anand Bhuptani, senior, Terre Haute South Vigo High School



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