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COVER STORY



Photograph by George Sakkestad

Maya Sweedler (right) shows Emily Kessler where to attach a Lego piece that has fallen off. Teamwork and collaboration are big components of the First Lego League challenges.

Snap To It

Two teams of Los Gatos girls in Lego League championship tournament page

By Michele Tjin

A healthy dose of programming and a heaping portion of math never hurt anyone, especially enthusiastic and curious girls.

Ten local girls, from two different Los Gatos teams, have spent the last four

months designing and programming their own Lego robots to accomplish various missions, such as depositing Lego pieces into a basket. This weekend, on Jan. 20, they face off against 62 other teams at the Northern California Championship Tournament in San Jose to see which robots will come out on top.

Both teams, the Robochicks and the Smiling Noodleheads, are participating in the First Lego League, aimed at students ages 9 to 14. Every year, the theme of the competition changes, with this year being nanotechnology. Team members collaborate to make a machine that will complete as many tasks as possible in 2 1/2 minutes.

"The purpose is to get kids interested in science and technology. The league consists of robotic competitions," said Jonathan Sweedler, one of the coaches.

The two Los Gatos teams did well enough at a qualifying tournament in Hillsborough in December to advance. Suparna Vashisht is the coach of the Smiling Noodleheads, an all-girl team that is returning to the Lego challenge for a second year.

"What the kids are learning about teamwork is not something I did until college," she said. "They get frustrated sometimes, but they value each other's strengths. They learned to do that. This is not something you learn from a textbook."

Vashisht took up the coaching challenge in 2005 after her daughter, Ruchika Vashisht-Goel, saw a friend building robots for a competition and wanted to form her own team so she could participate. While many coaches have technical backgrounds, Vashisht does not, but she didn't let that hold her back.

"I don't even have a teaching background," said the coach with a business degree. "I didn't have anything except for curiosity and a desire to try something new."

She went online to find resources and taught herself what she needed to know about programming so she in turn could teach Ruchika and teammates Jacquelyn MacDonald, Alyssa Steger and Corinna Kalogeropolou, all sixth-graders at Fisher Middle School. She must be doing something right because the Smiling Noodleheads have been invited to advance to the state competition for a second time.

Winning a trophy at the state competition is definitely on their minds. Last year, at the qualifying contest, the girls won a trophy, made of--what else?--Legos for best presentation, and this year they were rewarded for best teamwork. Cooperation is crucial, they say. Ruchika recalled how last year, with 10 minutes before the team was scheduled to go, she dropped the robot,

spilling Lego pieces on the ground. But no one was mad at her, she said.

"We all put the robot back together," she said. The machine seemed to be no worse for wear.

The girls say they are using what they learned in last year's competition to their advantage this year. For example, they programmed the robot wheels to move at a certain number of rotations, instead of rolling for a given amount of time. Both are valid ways to make the robot do the same thing, but the Smiling Noodleheads learned to go with the first method.

"Some people use seconds, but if the battery is low, that is not as reliable," Ruchika said.

The Smiling Noodleheads took a break from meeting over the holidays, but they're back on track now. Recently, they were running through their challenges one more time and still had to make sure their robot meets the size regulation. They also want to make sure they are ready with answers for the judges during their presentation, which describes a medical use of delivering nanotechnology to the liver. Presenting to judges is unlike doing a class presentation.

"The judges give you a stare, and they don't have any emotions," Ruchika said.

Also nerve-racking is having good runs while other contestants are watching them. It's one thing to do the challenges in the garage at home, but at the competitions it's noisy, and a play-by-play commentator who announces their every move doesn't help. On top of that, their successes and misses are broadcast on a television for the audience to see.

"There are millions of eyes watching," Alyssa said.

The Fisher girls are aware that experiences such as this could give them a foundation in engineering if they want to take that route. They say they definitely want to continue with the Lego robotics program until eighth grade but aren't sure yet if they would like to go for the high school robotics competition. At the higher level, contestants don't work with Lego pieces but weld and shape metal to make their machine.

"It sounds really hard," Alyssa said.

After last year's competition, the Smiling Noodleheads were surprised to find out there were no other Los Gatos teams participating in the Lego league. They put on their own outreach campaign, and the team members demonstrated what they could make their robot do.

"Los Altos has a huge community [of people interested in the Lego challenges]," Vashisht said. "Why shouldn't Los Gatos have one?"

It was one of the Smiling Noodleheads' presentations that caught the eye of the coaches for the other Los Gatos team, Sweedler and Eddie Kessler. Their daughters were very much interested, and after reaching out to other interested families over email, the Robochicks--Nadine Swenberg, Emily Kessler, Tanya Takahashi, fifth-graders from Blossom Hill; Maya Sweedler, fifth-grader from Daves Avenue; Emma Montross, sixth-grader from Rolling Hills Middle School; and Meredith Benson, sixth-grader from Fisher Middle School--were born.

The team first met in May to learn about how to program under the tutelage of their coaches. None of the girls knew much about programming six months ago, but on a recent meeting night they were all able to make modifications to the program on a computer as if it were second nature.

"I think it's fun to work with robots," Emily said.

The Smiling Noodleheads isn't the only team that won in its rookie year. For the Robochicks, being named the winner for best robot performance was a great bonus to cap off four months of work.

"We screamed," Nadine said. "We were so excited."

In an addition to the robot runs, the teams are required to make a presentation about the applications of nanotechnology. The girls rehearsed their skit about using technology to restore art frescoes, but the coaches weren't convinced yet they had nailed it. Too much giggling and not enough information, they said.

The girls weren't too deterred, but it was back to tweaking the robot to make sure it would perform the same way each time.

Kessler said the girls have already learned such advanced concepts as gear ratios.

"It was what they wanted to learn, so it didn't feel like school," Kessler said. "That was nice."

While there are still questions for the Robochicks on how they will get consistent results from the robot, one thing they are sure about is that they just want to have fun while they're learning and not necessarily win, they say.

And they love the fact that there are no boys on their team.

"We work together, but we're a little shy when they're around. They're bossy," Maya said.

Parents of team members see great benefits from participating in the First Lego League.

"It taught my daughter to be more confident," said Pamela Maker of daughter Meredith Benson. "She's speaking up for herself."

She saw such events as another arena where children can shine.

"There is so much emphasis in our culture on sports. This is like sports for the mind," Maker said.