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Science Sisters take regional prize, head to state LEGO championship

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Laurel School's Science Sisters, a team of eight students participating in the FIRST LEGO League robotics club and competition, received the regional Innovation Project Award and are now competing at the state level. Eighth-graders Katie Izanec, from left, Ella Witalec and Clare Hess conduct a run with their LEGO-constructed robot at the "robot table" in the school's STEM lab at the Butler Campus in Russell Township as part of the remote competition.

Photo courtesy of Laurel School

While Women's History Month is underway, a team of scientific sisters is making its own mark at Laurel School as the girls navigate the FIRST LEGO League state championships.

After competing and walking away with the Innovation Project Award in the regional competition in January, the Science Sisters have their sights set on coming out on top at the state level and hopefully moving on to a national competition.

The team is made up of eighth-graders Clare Hess, Ella Witalec, Katie Izanec and Eve Belding; seventh-graders Leah Stephany and Amelia Bravo; and sixth-graders Hannah Garcia and Emily Vrabel. The team is led by Coach Sarah McKeown, instructional design and innovation specialist and middle school computer science teacher at the Laurel Butler campus in Russell Township.

The regional competition, while usually taking place at local high schools, was virtual this year due to the coronavirus pandemic, said Ella, 13, of Chagrin Falls.

"The [regional] competition spanned over three weeks. We had to submit a robot run every week," added Clare, 13, of Chagrin Falls. "And then we had a weekend where we got judged on our project and core values and robot design."

While competing in the FIRST LEGO League's RePlay Challenge, the team had to exhibit core values of discovery, innovation, impact, inclusion, teamwork and fun; complete and present an innovative project and compete in a robot game by solving missions on a "robot table" with a LEGO-constructed bot.

With receiving the Innovation Project Award, this means the Science Sisters had the best project at the tournament, Ms. McKeown said.

Ella explained that the project had to relate to fitness this year, so the team identified a safety issue with running outside while listening to music.

Ella and other members of the team are runners and like to listen to music, which makes it harder for them to be cognizant of traffic, she said, so the team designed a belt to alert runners of oncoming cars.

"We started researching, like, how we could make something that could alert you when a car is coming," she explained. "Our prototype would have an ultrasonic sensor connected to a Wi-Fi shield. And that Wi-Fi shield allows the ultrasonic sensor's controller to connect to a phone. And then on that phone, there would be an app downloaded that facilitates notifications whenever a car comes within the range of the ultrasonic sensor, which is 50 meters."

Katie, 14, of Pepper Pike said that her dad is a long-distance runner and she and the team noticed that those who compete in marathons or other long-distance races often have a runner's belt for water, so they decided to use this for the base design of their project.

She said the team received the prompt for the innovation project in August.

"We researched a bunch of different sensors [and] we wanted to know which one would be the best for, like, sensing cars and we landed on the ultrasonic sensor," Katie said. "Our process was basically just learning how to put the ultrasonic sensor into a running belt and, like, make it efficient, how to let the runner know, and that's where we got the app."

The girls received their judging on Jan. 23, then on Jan. 30, the team found out via Zoom that they would move onto the state championship.

"We were super excited," Clare recalled. "The way that they had announced it made it very stressful for us because we didn't know when our team name was coming up." She said with the way the team names were announced, they weren't even sure they would be mentioned in the Zoom call. "I remember I started, like, jumping up and down because I was so excited."

"The three of us have been on the team for three years and we went to states in our first year of doing this," Katie said. "So it was very exciting to be able to do that again with a larger team."

Ella said they made it to states their sixth-grade year after earning the top award for core values as the school's first team in FIRST LEGO League. She said last year, while they didn't go to states, they received the top award for their robot design. "So we were really excited to now have also won an award for our project," she said.

The Science Sisters are in their third week of the state championships and will be judged this weekend on their performance in the STEM competition, when they will also find out their final standing in the competition.

Katie explained that there is uncertainty as to whether a national competition will even move forward, but the girls aren't letting this hold them back from looking forward.

"I think girls should get interested in STEM because at least I know we've gotten a lot of memories from the FIRST LEGO League competition and we've had a lot of fun," Katie said. "We've gone through challenges, of course, our robot malfunctioning and not appreciating us

sometimes, but I think it's been an overall really fun experience for all of us. And everyone should get to try that."

With the three components involved in FIRST LEGO League, Clare said anyone who might just be moderately interested in STEM should give it a try.

"There is a lot that you can be interested in," she said. "I think that a lot of young people who are even just kind of interested in STEM should consider FIRST LEGO League for the future, because we have, like, a wide range of people, some who are more interested in the robot and some who are more interested in the project and some who, like, just enjoy having fun with and bonding with other people."

Ella said while the competition might seem tough, the experience is worth it.

"When we first started FIRST LEGO League, it felt very daunting, especially with the robot game, since we'd never really done that type of programming before," Ella said. "But even if it seems scary, you always have your team members and it's really fun. It's not going to go perfectly every time; you just kind of have to accept that, and it's still really fun, and it's always super exciting when it does go well."

The girls agree that they also have developed lifelong skills, from the technical engineering skills to more commonplace skills like public speaking.

Ms. McKeown said the Science Sisters' participation in FIRST LEGO League goes beyond this.

"They haven't only just strengthened their own skills," she said, "they're having fun. They're resilient. They have also now grown this team."

Science Sisters started with just Katie, Ella and Clare along with fellow current eighth-grader Eve. The team has now doubled in size. While the four will no longer be official Science Sisters once they enter ninth grade at the Upper School in Shaker Heights, they will continue their interest in robotics through VEX Robotics, a robotics competition that extends access to upper school and university students.

Ms. McKeown said too often women and girls avoid challenging opportunities if they don't feel 100-percent qualified right away, so getting involved in programs like FIRST LEGO League can show young girls that it's OK to say yes to opportunities, even when failure is possible.

"I love that [the Science Sisters] have shown that you can say yes to this opportunity and learn and grow from it," she said. "Even if you don't feel like an expert on it in the beginning, or if you don't feel like you're perfect at it, just saying yes and giving it a try and being OK with failing sometimes or being OK with the challenges sometimes, I just think that that's really what this club and this group and these girls have shown in this program."

Sam Cottrill

Sam joined the Times in 2019 and covers several communities and schools in the Chagrin Valley and Geauga County. She also oversees the features/community events and the website. She earned her bachelor's degree in journalism from Kent State University.