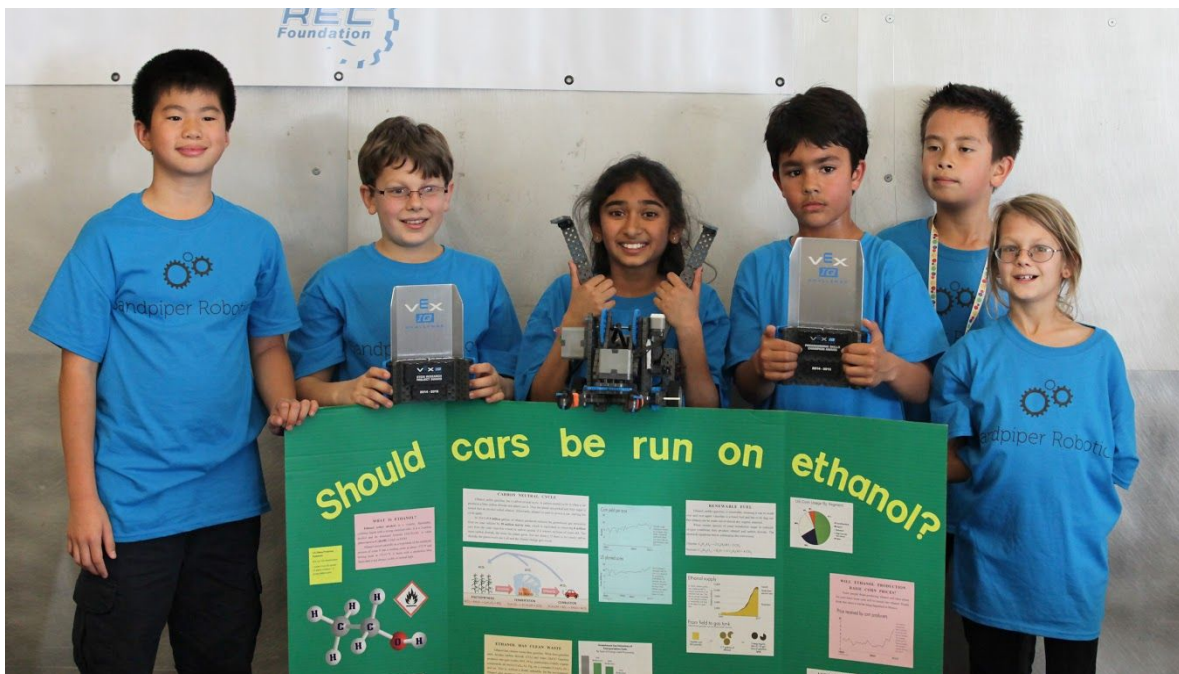


My World: The Story of a VEX IQ Experience

Year one: Sandpiper Elementary School #2014

This two and a half-year experience started when I was in fourth grade in Sandpiper Elementary School. I had no idea of how much VEX IQ would change my life. My dad, a software engineer, had just signed me and my brother Jake, who was in fifth grade, for the newly-started robotics club. On my first day, I met my teammates. There was Inara, Grace, Jay, Zack, Jake, and of course, me. Our mentor was my dad. We started with the basic clawbot from the manual to get to know the pieces. Back then I thought that VEX IQ pieces were like Lego, except you had to add the "bumps" on yourself.

There was one problem among us. We couldn't decide on a team name, because we decided it should be everyone's choice, not voted. So we decided that we should leave it alone for now. Soon we had our first League competition. The clawbot was perfect for picking up the bulky cubes, but stacking was hard because the claw could be lifted only so much before it was at a wrong angle. Near the end of the competition we found out that our principal had signed us up under the name the Sandpiper Superstars.



We got to States during one competition. We had decided that our name should be the Master Builders, but our principal found out too late. We worked very hard on our techniques to stack the cubes with our modified clawbot that had a claw on a belt and could stack three high. We named our robot BP & J (President Business (from The Lego Movie) and jelly). Our program was perfect. For weeks, we practiced and re-practiced our STEM presentation on Ethanol cars. Using my soldering skills, Google, a small wooden drivebase with turning front wheels, an ethanol dry cell, two capacitors, some wires, and a switch, I made an ethanol-driven car to demonstrate how an ethanol car works. During the Awards ceremony, we won Programming Skills and STEM. When we took the team picture with the banners and the trophies, Inara commented, "We really were Superstars of this competition."

We didn't win anything in States, so it was only about a week until Worlds before we found out that we were chosen with a wildcard to go. We found out when our principal got a text from her friend "Congratulations on getting to Worlds!". We got the team back together, and, knowing that the other teams had much more time to prepare themselves for Worlds, we did daily meetings, even doing the meetings over the weekends. Our robot had wheels on stilts and claws from the underside of its "belly". Generally, it looked like a hollow box or a garage. The point of the robot was to push a line of cubes into the scoring zone while holding the last three blocks in the claws, then stacking them onto the base blocks. The same technique was used in our program.

With our robot named Wall-E. (the "E" stands for Emmet; we couldn't decide) we flew to Kentucky. Rick, the assistant mentor, was in charge of the robot. When we got to Kentucky, my dad and Rick traded check-in stories. Rick's were more interesting: "They took a nice, long look at Wall-E..." The airport was HUMONGOUS. No kidding. We walked like one mile to the baggage pickup and one more to the exit. We kept getting lost. At Worlds, the days passed quickly, and uneventfully, until one programming run. Jake and Jay were with the robot, I was taking the video, and the rest of the team cheered the robot on. The program went perfectly and made in in time. We felt great. During the awards ceremony they announced our number and name, 2014, the Sandpiper Master Builders! We won second place in the world! The world!

Video of our winning run on youtube: <https://youtu.be/Op-FivG0UJk>

Year two: Sandpiper Elementary school, #2014 k

Another year. Another challenge. No older brother to help with final touches on the program. That was how I felt when I was without anyone I was friends with in the new team. Okay, I was friends with Polina. This year the Sandpiper robotics program expanded from two teams to five teams. My teammates were Polina, Eric, Owen, Joshua, and Alex. My dad was the mentor. Our team number was 2014K, and the challenge was Bankshot. Everyone except me was new to VEX IQ. After a lot of explaining, we convinced the boys that this wasn't Battlebots, that the teams work together, and so we shouldn't be named Killers or Breakers, but something more teamly. Finally we settled on the Sandpiper Sandroids.

. Me and Jake helped start a VEX IQ club at Jake's current school, Nesbit Middle, when we did MoonBots Google Xprize Challenge over the summer, choosing VEX IQ as our building material. There were one kit to build out of and three more to donate. We chose to present our MoonBots presentation at Nesbit and then donate the three VEX IQ kits to the robotics club there.

Video of Moonbots phase II on youtube: https://youtube/mz_AK38nd_Q



We weren't strong in teamwork, and we were surprised that we got to States with the Design Award. We tried to focus mainly on STEM because that was our strength. Our topic was Microscopes and Light. On the background of the board I painted a rainbow going through a prism and flipping. We printed everything in see-through paper so the judges could see the design. We also made an atomic force microscope out of VEX IQ and programed it to draw the diagram on the display of the brain. It was very squeaky. With this STEM, we won the STEM research award, and nominated, against all odds, to Worlds.



Winning Design Award at League Finals



Winning STEM Award at States!

Even though the boys teased me and Polina regularly because we were girls, and girls were "dumb", we actually, for one meeting, abandoned the battle between us, and got a great deal done on our new robot. In LDCad, we made a robot that scooped up balls and could fit up to three by three balls in it's storage space. Then we would turn around, raise the storage space and shoot all nine balls into the high goal. In theory.

Real life was much harder because we had to test and re-test and modify the shooting mechanism, and of course, program it so we could drive easily. After a lot of tries, I finally managed to program the Tele-op right, and I figured out how to do parallel programming in Graphical.

STEM research practice: <https://youtube/lb0-5KqocVk>

Worlds was the same routine a last year. Practice, hand the controller over, take the old battery, run to the pit, get the new battery, push the old battery into the charger, run back to the fields, put the new battery into the robot, practice, repeat, except for the fact that my dad had gotten two teams to Worlds. Once, we got a really good alliance called the Milani Masters. We practiced about twenty times. Me and Eric were driving. We were to pick up six balls, shoot them, and get onto the ramp. Meanwhile, the Milani Masters were supposed to vacuum all of the balls from the ramp and then shoot them. When we were up on the big stage, everything went according to the plan. At the end of the match, we shook hand and hi-fived each other. Suddenly, the Milani Masters took off their leis and gave them to us. The announcer announced that they were made of candy!



Year three: Mae Nesbit Middle School, #94002 A

Middle school was a big change for me, because I chose Nesbit Middle. Our first meeting was held on Monday in the eating area, and not in the robotics room, because the PTA (Parent Teacher Association) didn't let us go into the room before their first meeting, which was Tuesday. This year Jake was back on the team with me, and last year his team had been named the Nesbit Nerdz. I wanted our team to also be named the Nesbit Nerdz, and we agreed on it. My teammates were Jake, Gabe, Michael, Winston, again Zack, and last but not least, me. My dad was the mentor. Unlike all of the other years, this year I was the only girl in the team.

Winston, Gabe, and Michael built a clawbot to get used to the parts and while I tried to make a program that went up the ramp. I just couldn't make it balance, no matter how much I tried. Winston went all emotional over it, "falling" on the floor in despair. We couldn't finish the program that day. A couple of meetings later, my friend transferred from Notre Dame to Nesbit. Her name was Charlotte. Soon after Charlotte joined the team, a field arrived to our home. We already had 3 full superkits at home, but adding a field to the living room showed how much my family had changed in the past few years. We even began holding extra meetings at home!



With Charlotte also came the idea of how to bring our STEM to life. For quite a while we had been considering the idea that our STEM could be Rescue Robots, but Charlotte helped a lot. She had a Phantom Drone 3 that we could use for our testing of payload, or how much the drone can carry and if it can carry enough to supply the needs of the hurt. We started by adding the absolutely needed things like water, Band-Aids, disinfectant, EpiPen for allergic reactions, and of course, picture instructions. Soon we found out that the drone could carry much more and added painkillers, Gatorade energy chews, a walkie-talkie, and most everything we thought could be useful in an emergency.



Winning Sportmanship Award!

I feel like I have been very lucky so far in robotics. I just hope my luck continues to hold and that I continue to learn more about robotics and programming, and that I will be able to participate in VEX challenges, even though I doubt that a full-sized VEX Robotics competition field would fit in our apartment.



Credits: Story by *Eiška Nejedlá*
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