



the stars
challenge

Coding and Robotics
Winter 2020



“All students should have the opportunity to learn how to program. Computer science is the basis for modern day creativity and expression.” – Anne Wojcicki, CEO and Founder 23andMe

As a STEM educator I have the daily opportunity to observe how students perceive computer programming. Some think of coders who sit by themselves at a computer all day, but my teaching assistants (Ore, Mia, Jonah, Melanie, Marissa, Andrew) and I wanted to demonstrate how coding can be a fun and interactive experience. We began our journey by introducing basic coding concepts and used them to build Android Apps using MIT App Inventor. Our next step was to apply that knowledge to programming in Python, one of the most popular coding languages used by students and professionals today. We then entered the realm of robotics, where you used your coding skills to access and control various sensors and actuators, culminating in the remote control of the VEX RECbot.

I encourage you to share what you have learned and that you continue to pursue your interest in the fields of coding and/or robotics. As stated in the quote above, “Computer Science is the basis for modern day creativity and expression.” Just remember that you don’t have to do this by yourself! Some of the best (and most fun!) journeys are taken with others!

In closing, thank you for a wonderful class!

Ore, Mia, Jonah, Melanie, Marissa, Andrew and I had a phenomenal time working with and learning from each of you!

Mr. Hanas



Students started off with a game of "Coding Simon Says". If the line of code is true, do what Simon says to do!



All smiles from the new STARS students and the teaching assistants! :-)



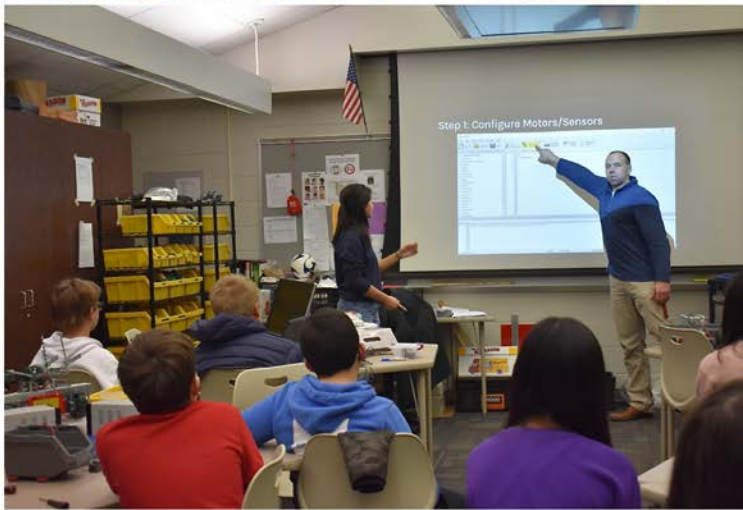
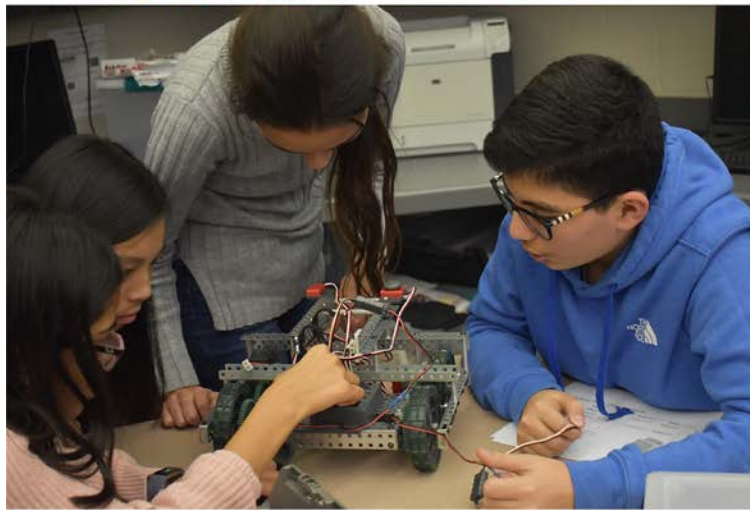
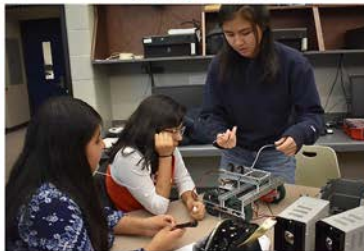
Students learning the fundamentals of Python and how to build their own apps using MIT App Inventor. Students created a game of Mad Libs using Python and a tug-of-war app that they could play with their friends!



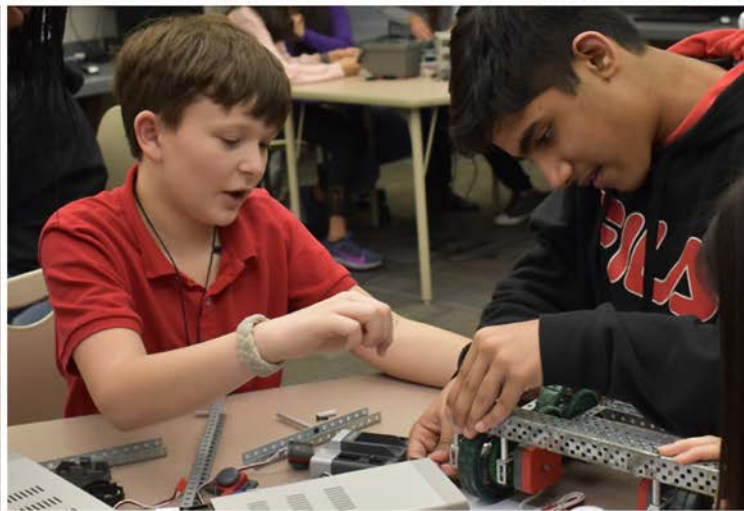
As students finished creating their apps and games, they moved on to building robots! Students broke up into small teams, each with a TA, to assemble and code their robot.



The first day of VEX building. Students divide the build amongst each other to finish their bots faster.



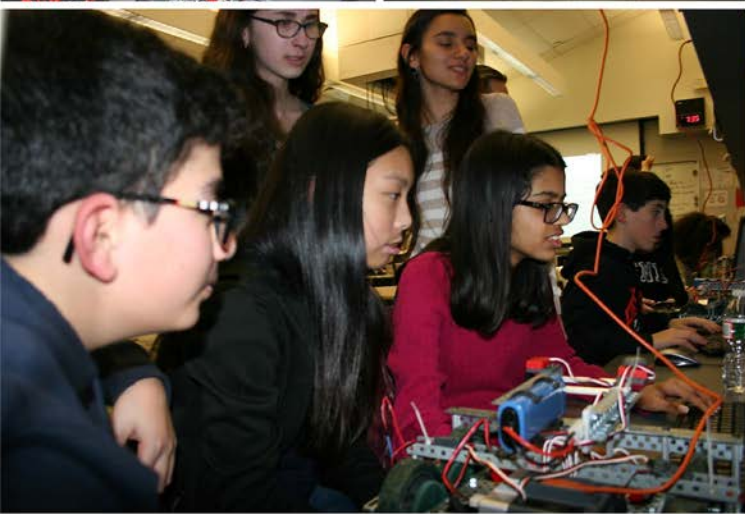
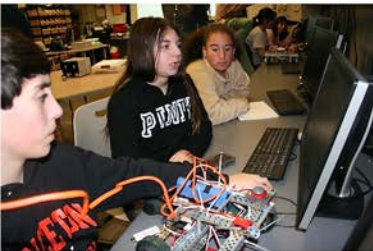
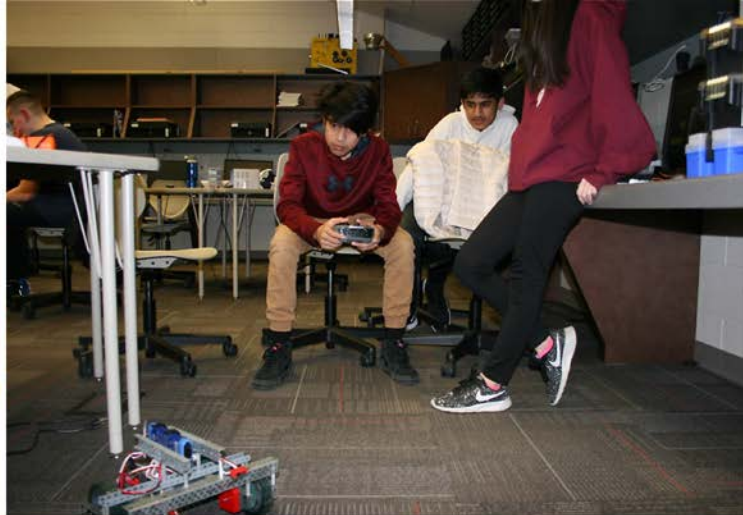
Second day of VEX... The robots are starting to come together! As students finished up their robot builds, they began learning how to configure and program the robot.



Finishing up the builds! Both the students and the TA's pay close attention to the different components, making sure the bot is sturdy and ready to drive



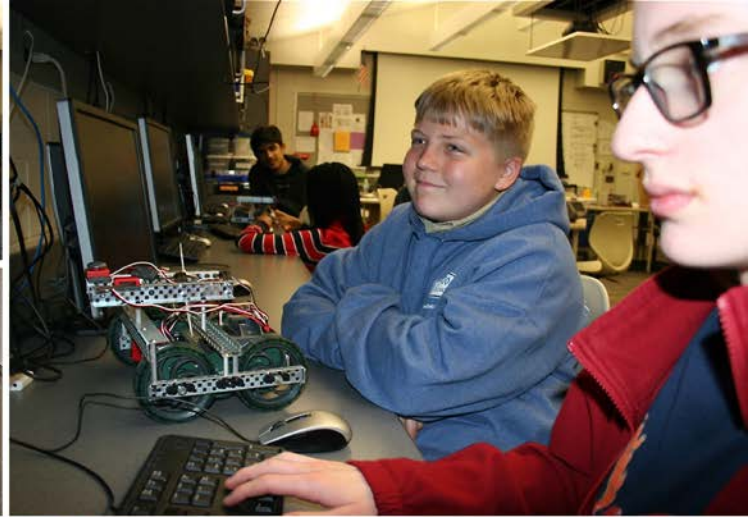
Time to test out the bots! Students continue tweaking their bots and connect them to a controller. Look at those bots go!



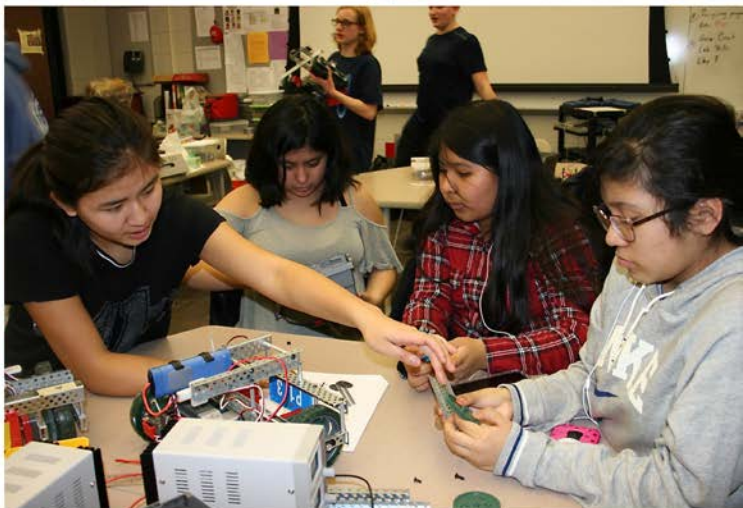
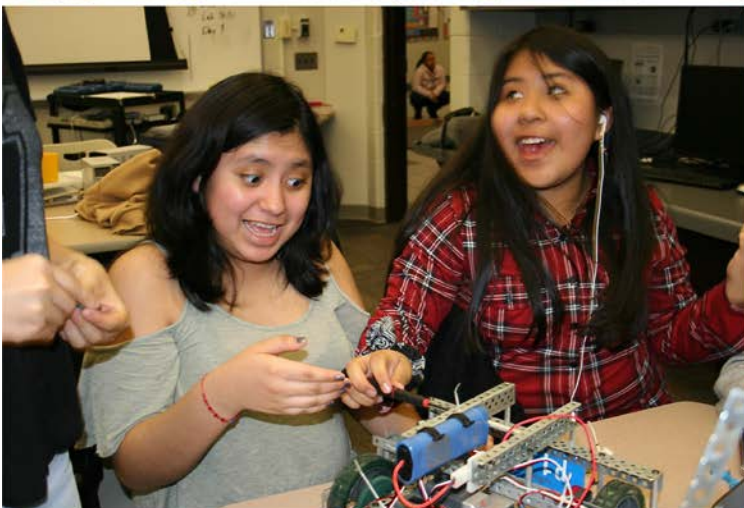
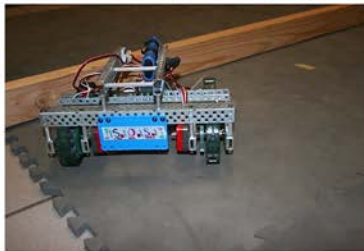
Students modify their code to make their robots drive straight and turn on their own without the controller. These skills will come in handy when it comes time to tackle the maze!



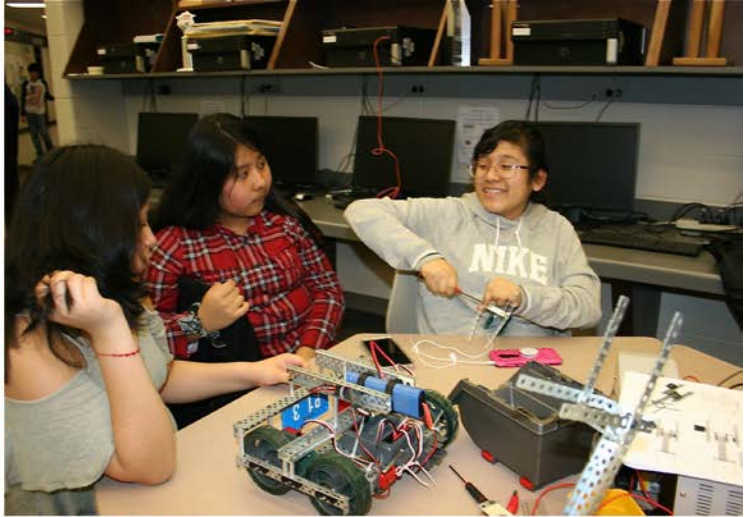
Students driving their robots down the halls to fine-tune their ability to drive straight. They coded the robots to go straight autonomously, so they didn't even need a controller!



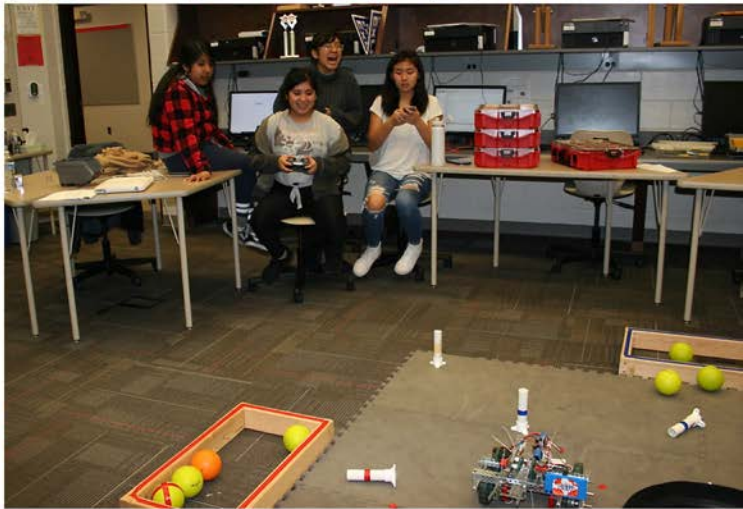
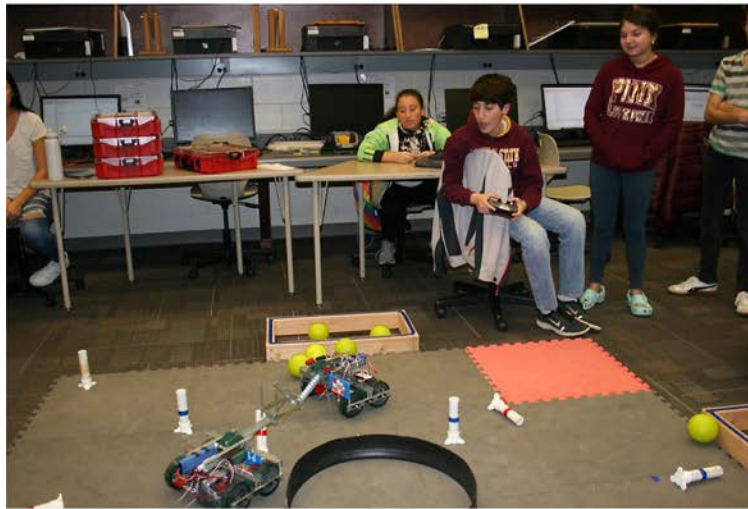
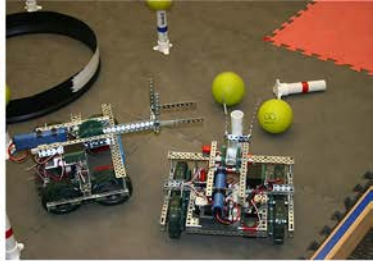
Students finishing their autonomous driving functions and then moving on to try to figure out how they can tackle their next challenge: THE MAZE!



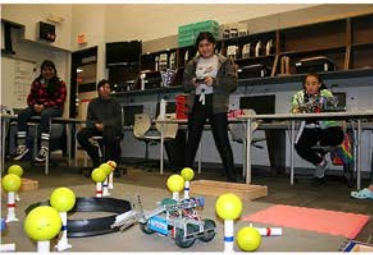
Getting closer...Students continue to make more tweaks as they try to find the sweet spot in their code for a perfect maze run.



All of the students are almost done with the maze and are now starting to assemble the lift for the final activity. In the bottom right the TA's can be seen all smiles after another successful day.



Teams ACE, YALL-E, Brains, E, and SOS go head to head in a robotics competition! The goal is to pick up as many balls as possible and drop them into their team's goal zone in order to score points.



Closer... closer... STOP! Team YALL-E working together to guide Christian towards lifting a ball at one of the posts! All teams worked hard and had fun scoring points!



The suspense... All eyes watching as Duncan takes over the controls and drives carefully towards a goal zone, attempting to score points!

