

Rye Country Day School Success Story

Rye Country Day School (RCDS) has been utilizing some different robotics and coding education products with their Upper School Engineering and Robotics class. While they had a robust hardware program, the school was eager to find programming learning tools that would enable students to improve themselves in the core fundamentals of coding. RCDS was in pursuit of a virtual learning tool that would help students elevate their coding skills while familiarizing themselves with how the world of robotics and coding connect.

Rye Country Day School , Prior To Meeting Riders

Rye Country Day School (RCDS) was using VEX Robotics as their primary learning tools for students aged 14 - 17 years old in the Upper School Engineering and Robotics class. Although a powerful hardware product, VEX was not designed for beginner programmers and was overwhelming for many students new to robotics. It also was not readily available to use during a pandemic with students being remote and not able to gather in groups to collaborate or problem solve together.

As RCDS's Robotics Teams competes in VEX Tournaments, it needed a program that would help train young programmers to prepare them for VEX equipment. Other Engineering and

Computer Science courses at RCDS used format programs different enough from VEX, such as Java, Python, and Matlab (similar to C and C++), that did not specifically prepare students for VEX's coding language or robotics-specific needs or expose students to programming in an Integrated Development Environment (IDE).

RCDS's robotics competition teams (which operated through the school clubs program) consisted of about 25 students. The students had strong hardware and building skills from their participation in VEX competitions, but not enough proficient programmers for each team. With the COVID-19 pandemic and VEX competitions either cancelled or too unsafe to join, the school faced a challenging question: How can we advance our students coding skills and promote educational competitions to participate in safely, both during the pandemic and beyond?



SCHOOL

Rye Country Day School

TEACHER

Katie Sandling

CLASS NAME

Upper School Engineering and Robotics

CLUB NAME

Upper School Robotics Club

Collaboration Plan For RCDS and Riders

RCDS approached Riders looking for an effective way to teach coding through robotics and to host competitions in a fully virtual manner during the pandemic. Their robotics teacher Katie Sandling wanted an all-around, accessible program that could allow her students to build programming skills useful to robotics and gain exposure to the popular programming language Python. RCDS also wanted their robotics club to get involved in a virtual competition community while all local VEX competitions were on hold and it was not possible to gather students on school campus together for club meetings. Rider's IDE was appealing for students' ability to code, debug, and watch their robot execute the commands in real-time in scenarios that closely mimicked real-life robots. Additionally, RCDS had found that VEX curricula requires students to learn too many tools and skills simultaneously before having meaningful experiences, so Rider's course curriculum offerings that nicely scaffolded the learning process were appealing.

What Rye Country Day School and Riders Did Together

Riders and RCDS provided the students with better tools to build and improve their robotics and coding skills. Students were able to access the Riders course curriculum consisting of 7 different projects and lessons. These projects consisted of different robots being placed in fun, user-friendly visual environments and scenarios. The student's objective in each project was to program the robot to achieve certain milestones. Students were guided through step-by-step instructions found in the project's ReadMe lesson plan while learning about core computer science and robotics principles including loops, logic, arrays, conditionals, shortest-path algorithms, and more. Students could work individually, and the class also conducted paired programming exercises that allowed them to collaborate on the same codebase together or assist one another. This empowered students as individual programmers while fostering a collaborative community.

Riders helped RCDS host two internal competitions for the school, one for the Engineering & Robotics class and one for the competition club. Students not enrolled in the Engineering and Robotics class, too, were granted access to the Courses where they could learn Python and skills that would prepare them to compete in the Riders competitions.

Results of RCDS and Riders Collaboration

Riders provided RCDS with a sufficient and effective tool to teach robotics and coding remotely thanks to its fully online cloud-based teaching solution. With the Riders Robotics IDE, also known as RIDE, students were able to write code and execute their codebase instantaneously in simulation environments. RCDS was able to see real improvement in their students' coding skills who were in the Engineering and Robotics class. These students also received their first real-world experience programming in an IDE which will prove enormously beneficial in years to come for students building programming skills and pursuing careers in high-demand fields such as robotics, software engineering, artificial intelligence, and data science. The school was also able to provide competitions for their Robotics Club members who were craving an educational competition to participate in after the pandemic canceled their original VEX competition plans. Riders made robotics, coding collaboration, and competition much easier during the pandemic for Rye Country Day School. Post-pandemic, they will continue to use Riders amongst their student population to continue building and challenging their robotics skills.



KATIE SANDLING
Robotics Teacher

"Riders allowed us to not only keep up our Robotics program in the pandemic but to enhance our program. We are excited to integrate it into our robotics curriculum even after we return to in-person VEX competitions."