

# Pennsylvania Virtual Charter School Students Excel at STEM with Blackboard Collaborate

For Pennsylvania Virtual Charter School (PA Virtual), Blackboard Collaborate has been instrumental in bridging the geographical gap between faculty and students who live throughout the state. Despite having more than 100 fifth and sixth graders in the school's STEM (science, technology, engineering, and math) program, 100% of the students participated with a 100% rating in overall satisfaction.

It is no secret that the U.S. falls behind many other countries in the area of STEM, with many school districts lacking a comprehensive plan for how they will deliver STEM instruction to their students. However, PA Virtual is responsible for one the nation's most aggressive STEM programs for K-12 students. Using Blackboard Collaborate, the school has created an array of innovative programs, including a partnership with NASA to bring actual scientists and engineers into its online classroom.

## Online Learning and Collaboration Grows Student Participation and Satisfaction

The challenge at PA Virtual was even more difficult than for traditional physical schools given the geographic barriers faced every day. When sixth-grade teacher Tara Park, fifth-grade teacher Cindy Willits and Family Support Coordinator Amy Markle wanted to create a virtual STEM program, they turned to Blackboard Collaborate.



### WHY STEM?

*STEM learning is an economic imperative. Experts say that technological innovation accounted for almost half of U.S. economic growth over the past 50 years, and almost all of the 30 fastest-growing occupations in the next decade will require at least some background in STEM.*

[www.changetheequation.org](http://www.changetheequation.org)



The team partnered with NASA's BEST (Beginning Engineering Science and Technology) program to bring engineering challenges into the classroom and used Blackboard Collaborate to bridge the geographic gap between teachers and our students. What's more, they were able to bring actual NASA scientists and engineers into the classroom for monthly virtual field trips. The result was amazing!

Out of Cindy Willits' 56 fifth graders and Tara Park's 57 sixth grade students, 100% participated and gave the program a 100% satisfaction rating. "We wanted to make the STEM activities and assignments optional in order to gauge interest and participation," says Park. "We never imagined we would have such a success rate!"

## Students Bloom with STEM

The school's "Bloom with STEM" program was designed around NASA's BEST program to deliver high-quality STEM instruction to its virtual students. Park and Willits began by introducing students to the engineering design process with a simple activity. Students were given straws and paper clips and were instructed to use the Blackboard Collaborate object-oriented, interactive white board to plan and design the tallest structure they could build.

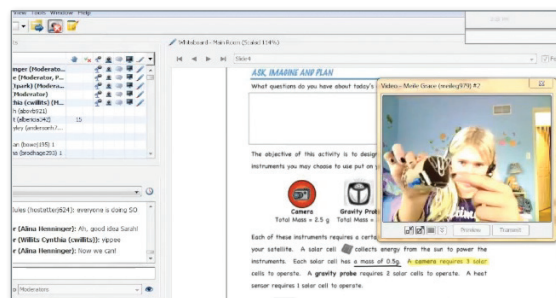
Once students understood the engineering process, the teachers began more challenging activities where they could bring real NASA scientists and engineers into the classroom, virtually. "Students were able to use Blackboard Collaborate breakout rooms and whiteboard tools to plan and design in groups," explains Park. "Once the projects were built, the students used the webcam to showcase their results."

Better prepared to move into more advanced engineering, students went on to not only build satellites and rockets using Blackboard Collaborate, they were also able to launch their rockets together. "Again, Blackboard

## PA VIRTUAL PARENTS PRAISE THE STEM PROGRAM

*"The ways that she integrates technology, instruction and real-life experience and active participation is both remarkable and inspiring."*

*"He expresses over and over again how much he loves your online classes. Science has always been a class he struggled in, but this year he looks forward to class."*



Collaborate was instrumental in bridging the geographic gap between us and our students," Park says. The example above shows a breakout room where students were able to launch their satellites.

Finally, Park and Willet were able to deliver high-quality science and math instruction using Blackboard Collaborate as their primary tool for connecting with their students. Together, the teachers and students completed live science labs from the comfort of their own homes.

"This year has been the most fulfilling year for all who were involved in this program," Park concludes.

