

Caterpillar Brings Driverless Trucks into STEM Classrooms with Spark 101 STEM Skills Video

Teachers Invited to Use Free Interactive Video Challenges to Bring Science and Math to Life for Students with www.spark101.org

Teachers across the nation can now engage students in authentic problem solving around the science, technology, engineering and math (STEM) skills required to design self-driving vehicles for harsh environments.

While students might think that the first self-driving vehicles will be designed by the automotive or consumer technology industries, engineers from [Caterpillar Inc.](http://Caterpillar.com), the world's largest heavy equipment manufacturer, have already deployed high-tech, autonomous haul trucks to improve safety and productivity in mines around the world.

With thousands of engineers and technologists innovating solutions for Caterpillar's customers, STEM graduates are critical partners in the company's mission now and in the future. That is why Caterpillar supports both national and international STEM initiatives—to inspire the next generation of game-changing innovators.

Caterpillar partnered with Spark101.org for a unique solution to engaging students in STEM coursework and future potential careers. Spark 101 STEM skills videos, presented by employers like Caterpillar, use an online interactive video format to let students work on real challenges faced by professionals in business, government, nonprofit, and academic institutions. The 10-minute classroom videos—co-developed by educators, employers, and Spark 101 design experts—engage students in authentic STEM problem solving, aligned to curriculum and educational standards for easy classroom integration.

In [Caterpillar's challenge](#), students are asked to use their problem solving and math skills to choose the appropriate sensor systems to enable autonomous haul trucks to safely navigate the harsh environment of a mining site.

“Developing a STEM challenge with Spark 101 lets us build our talent pathway by promoting STEM careers to thousands of students worldwide,” said Michelle Unser, Caterpillar's lead of Engineering STEM Outreach. “This way, we address the future needs of our organization while also helping learners—in our communities and beyond—launch their identities as STEM professionals.”

Thanks to the support of employers like Caterpillar, secondary teachers can access more than 50 free Spark 101 STEM skills videos and curriculum-aligned teaching materials online at www.spark101.org.

“I love watching my students work through the challenges, using their knowledge in ways that prepare them for real life,” said Susan Patterson, a high school math teacher in Texas and Spark 101 Teaching Fellow who was involved in creating Caterpillar's challenge. “Spark 101 gives me the resources to bring deeper learning into my classroom—helping me keep my students motivated to master essential math skills like linear equations.”

Spark 101 STEM skills videos use a format proven to be effective in schools. A 2015 independent evaluation found that all students exposed to Spark 101 increased their STEM career awareness and skills, with significant positive effects on STEM engagement among students with little previous STEM understanding or interest.



Surveys also showed that 80 percent of students want teachers to integrate case study challenges into classwork and want employers to provide more case studies. For the complete evaluation, see [“Using STEM Case Studies to Prepare Today’s Students for Tomorrow’s Jobs: An Evaluation of Spark 101 Interactive STEM Videos.”](#)

Spark 101 is a program of the 114th Partnership, a national nonprofit that helps students navigate education and career pathways. By connecting classwork to professional pathways, the organization will equip one million students with the knowledge they need to connect their personal passions to high opportunity careers.

“Each year four million students graduate high school without having had an opportunity to tackle a real-world problem. And employers need options other than internships to introduce students to viable careers and critical skills,” said Jane Kubasik, founder and president of the 114th Partnership. “Spark 101’s real workplace challenges are proving to help learners connect passions to viable career pathways, while becoming more motivated to improve their skills.”

To see the Caterpillar’s full challenge video and log in for complementary lesson plans, visit: <http://www.spark101.org/video/navigating-the-future-of-autonomous-vehicles/>.

Website: <http://www.spark101.org>



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