



Human Energy®

Education: Inspiring America's Future Innovators

Chevron's investments support STEM at every stage of learning – from K-12 through college and beyond.



Chevron champions STEM education in the U.S., from K-12 and beyond. Through our programs and strategic partnerships, we help students and teachers get the tools and resources they need to take advantage of every opportunity STEM offers. Because smarter kids today will lead to a more competitive America tomorrow.



In the Centennial High School library in Bakersfield, California, senior Austin Manzella watched his robot zigzag around the room using sensors to pinpoint and scoop up empty plastic bottles onto its floor-level conveyor belt – entertaining the students with its moves while teaching them how computer programming language can bring a piece of machinery to life.

“I had to apply elements of science, technology, engineering and math for it to function properly,” said Manzella, now an engineering major at Montana Tech of the University of Montana. “How will it turn correctly? How will it use its sensors to pick up materials or know how far it is from a wall so it won’t get trapped? Being able to see the direct results of projects like this is what inspired me to pursue a career in engineering.”

Manzella credits Chevron’s national education partner [Project Lead The Way](#) (PLTW) and their Pathway to Engineering programs for inspiring him to pursue further courses in engineering, including robotics. He also took college-level science, technology, engineering and math (STEM) courses through the Chevron High School Academy, and then gained further experience through Chevron-supported STEM summer research programs at California State University, Bakersfield.

A National Imperative

The new global economy requires more budding engineers such as Manzella to sustain and expand a workforce with crucial skills in STEM. Twenty percent of all U.S. jobs – 26 million positions – require knowledge in at least one STEM field. In fact, the number of STEM jobs is estimated to grow by 17 percent between 2014 and 2018. For all other fields combined, job growth is estimated to be only 9.8 percent over the same time period.

Yet despite the growing demand for technical jobs, science and math achievement scores in the United States are below those of other developed countries. Approximately 75 percent of U.S. students are not proficient in math when they enter high school. Of 65 countries, the United States ranked 26th in math, 17th in reading and 21st in science among students between 15 and 16 years old, according to 2012 tests by Programme for International Student Assessment. South Korea, Japan, Singapore and Finland far outpaced the United States in these areas.

“Nothing is a bigger priority for a healthy U.S. economy than STEM education,” said Edie Fraser, CEO of [STEMConnector](#), an organization that works to advance STEM proficiency. “We have to excite kids about STEM jobs. It will take inno-

➤ We support education programs and partnerships in countries where we operate. Learn more at Chevron.com/Education.

➤ We're working to ensure today's students are prepared for tomorrow's challenges. Learn how we support STEM education at Chevron.com/STEMbrochure.

Since 2011, Chevron's total investment in STEM-focused partnerships is more than **\$130 million.**



Chevron Partner: **Achieve**

Promoting education for critical thinking and problem solving

➤ To learn more, visit Achieve.org.



Chevron Program: **STEM ZONE**

Bringing STEM to life for over 100,000 participants

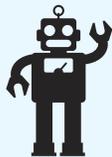
➤ To learn more, visit ChevronStemZone.com.



Chevron Partner: **Project Lead The Way**

Students solving real-life challenges through engineering curriculum

➤ To learn more, visit PLTW.org.



Chevron Partner: **The Fab Foundation**

Training tomorrow's innovators to build, make and do in "Fab Labs"

➤ To learn more, visit FabFoundation.org.



Chevron Program: **Fuel Your School**

Over 17,000 classroom resources funded in 2,000 schools through DonorsChoose.org

➤ To learn more, visit FuelYourSchool.com.



Chevron Program: **University Partnership Program**

Supporting 94 U.S. colleges and universities through scholarships, funding and upgrades

➤ To learn more, visit Chevron.com/UPP.

20%

of all U.S. jobs –
26 million positions –
require knowledge in at
least one STEM field.

vation, collaboration and partnership that we've not seen before, but I'm optimistic because we see so many leaders stepping up."

In April 2014, Chevron invited other businesses to join the company in supporting project-based learning methods to increase engagement in STEM across the United States. We supported this call to action by announcing an additional \$30 million commitment to create national partnerships with STEM-focused organizations, raising our total commitment to \$130 million since 2011.

"Chevron is committed to increasing access to and the quality of education around the world because an educated and skilled workforce leads to economic growth – for our business, our partners and the communities where we operate," said Steve Green, Chevron vice president of Policy, Government and Public Affairs. "If we want to truly make a difference, businesses must work together with education organizations, government officials, NGOs and community leaders to provide educators with the resources to interest students and prepare them for STEM-related careers of the future."

Chevron's Approach to STEM Partnerships

Vince Bertram, president and CEO of Project Lead The Way, a leading provider of STEM curriculum in schools, said no single organization can produce broad-based results on its own. "A key role of the private sector is that it sends a clear message to schools and to students that this work is important and relevant," he said.



Above: Students test their engineering skills at the Bay Area Science Festival.

Chevron takes a holistic approach to investments in education by supporting educational programs and standards that promote activity and interest in STEM, especially project- and problem-based learning curriculum; enhancing teacher training; providing classroom resources; funding out-of-school activities; and developing partnerships with universities designed to strengthen faculty, curriculum and student development.

We support education programs and partnerships in countries where we operate. Our [community map](#) highlights our education and STEM support around the world.

"Chevron's investments are a model for public-private partnership," said Professor Neil Gershenfeld, director of the Center for Bits and Atoms at MIT and chairman of the [Fab Foundation](#). "Providing widespread access to STEM skills and tools is much more than just an educational program; it's the path to a more inclusive economy."

Chevron's partnerships with leading education organizations that focus on project-based learning allow students to build on their classroom learning by doing activities and solving problems, as Manzella did in his robotics class. Our investments support STEM at every stage of learning – from K-12 through college and beyond.



Above: Students explore circuit making at the Chevron-sponsored Fab Lab in Bakersfield, California.

Chevron's support to Project Lead The Way has provided engineering curriculum to more than **100 schools** in seven states across the U.S., reaching more than **80,000 students.**

We support a new [National Academy of Engineering](#) initiative that will provide expert, research-based guidance to those involved with overseeing engineering education in K-12. We're working with the nonprofit [Achieve](#) to support the adoption and implementation of the Next Generation Science Standards and to align programs supported by Chevron to these standards. These internationally benchmarked standards aim to provide the science education needed to prepare technologically literate students for college and careers of the future.

Chevron's support to the Fab Foundation will bring fabrication labs (Fab Labs) to areas where Chevron operates in the U.S. In September 2014, Chevron launched its first sponsored Fab Lab at California State University, Bakersfield. A Fab Lab consists of a suite of digital fabrication and rapid prototyping machines, including 3-D printers. Working in Fab Labs, students can develop the critical thinking, problem-solving and analytical skills needed to become future innovators.

To inspire girls' passion for STEM, Chevron partners with the nonprofit [Techbridge](#). Our support funds after-school programs, student mentoring efforts and STEM summer camps. We also provide field trips to our facilities so girls can see firsthand the career opportunities in STEM.

Chevron is also expanding its work with PLTW. Our financial and volunteer support helps bring rigorous, project-based engineering curriculum to more than 100 schools in California, Louisiana, Mississippi, Ohio, Pennsylvania, Texas and West Virginia, reaching more than 80,000 students.

"Giving students opportunities, engaging them, nurturing their curiosity and building their STEM skill set gets results," said Bertram. "Chevron takes the right strategic approach: looking at a school with needs, identifying those needs, providing either financial or human resources to align with those needs, and holding the school accountable to the goals agreed upon. This collaboration fosters effective partnerships."

Inspiring the Next STEM Generation

Chevron's Quinn Woodard, 25, works in our San Joaquin operations as an electrical engineer and became interested in engineering through a PLTW class at his middle school. He recalls how they built a machine that sorted marbles as a way to make STEM come alive for students.



Quinn Woodard,
Chevron engineer

"Everyone had different ideas on how to do it, but we could see the results. The process taught our team to collaborate, think outside the box and communicate ideas to make things work. I take these lessons with me today when I work on projects with Chevron," he said.

Projects such as that inspired him to take robotics classes in high school and to study engineering in college. Today, he also volunteers in PLTW classes in Bakersfield.

"I tell students that Chevron supports STEM initiatives that teach them how to analyze problems and build solutions through the same lens that our engineers use in the field – a practice known as the engineering design process – and about all the cool things I get to do that result in energy production," Woodard said. "It brings it home for them and creates interest."

Chevron's STEM support and partnerships go far beyond just writing a check; we work with partners to help evaluate success, amplify their voices and connect them to additional resources. We provide industry experience that helps meet future workforce needs. Our employees also serve as mentors and role models for students in local communities. In 2012, Chevron employees in the United States, such as Woodard, logged more than 155,000 volunteer hours. Many of our volunteers support education, while others work with environmental and health organizations through Chevron-sponsored volunteer events.

Chevron engineer Sheryl Tyler, today a project manager for our Appalachian/Michigan operations in Pennsylvania, has worked on projects around the globe and regularly

Average U.S. Salary

\$44K

Average STEM Salary

\$78K

speaks to students at local schools. "When I show them photos of our work to build shipping terminals, gas stations and pipelines, they're excited," Tyler said. "They say, 'You got to do that!' I was inspired to be an engineer by a high school teacher and had great mentors in my career. Hopefully, the passion I bring to my work will inspire others to enter the field."

Manzella is so eager to get started on his career that he's on track to graduate a year early from college. "Most high schools give you a general education, but through Project Lead The Way and Chevron's support, I got an opportunity to learn about engineering that helped me decide what I wanted to do early in life," he said. "My goal is to be a petroleum engineer and a part-time architect" – and continue his work to bring STEM to life.

➤ To learn more about the programs and partnerships described here, visit:

Achieve.org

Chevron.com/CommunityMap

Chevron.com/UPP

ChevronStemZone.com

FabFoundation.org

FuelYourSchool.com

NAE.edu

PLTW.org

STEMconnector.org

TechbridgeGirls.org