

engagement and excitement, support student-led learning and teamwork, and inspire “aha! moments” and deep comprehension.

Tackling pressing challenges like designing tires for a moon rover, cleaning up an oil spill, or solving a fictional crime, students learn to test their limits and question what’s possible. As students learn how things work and apply what they know to address challenges, questions like “When am I ever going to use this?” disappear from the classroom. And by challenging themselves to rework and refine their projects, PLTW Gateway students learn that both failed attempts and persistence are key to learning and innovation.

A few of the hands-on challenges PLTW Gateway students engage in:

- Examining ways to cut energy consumption

- Creating mobile apps that help clients overcome obstacles

- Designing a home created from a reclaimed shipping container

PLTW Engineering

From launching space explorations to delivering safe, clean water to communities, engineers find solutions to pressing problems and turn their ideas into reality.

Through course offerings like Computer Integrated Manufacturing, Environmental Sustainability, and Civil Engineering and Architecture, PLTW Engineering empowers students in grades 9-12 to step into the role of an engineer, adopt a problem-solving mindset, and make the leap from dreamers to doers.

The program engages students in collaborative, real-world activities like working with a client to design a home, programming electronic devices or robotic arms, or exploring algae as a biofuel source. As students work together to design and develop solutions to local and global challenges, they engage in problem-solving strategies and critical and creative thinking. And by pushing themselves to rework and refine their projects, PLTW Engineering

The program's collaborative, hands-on explorations inspire students to discover the diversity of biomedical science careers and empower them to develop the knowledge and skills to make their life-changing ideas a reality. A few ways PLTW Biomedical Science students are applying their learning to make a difference:

- Designing and developing prosthetic limbs
- Creating public service campaigns on topics such as bullying and community health hazards
- Developing bloodwork innovations now adopted by Johns Hopkins
- Conducting studies on the benefits of mobile health clinics

PLTW Computer Science

With each passing day, it becomes more difficult to name something that computer science doesn't touch. No matter if we're flying cross-country, using mobile apps to manage our daily lives, or perching on the edges of our seats at a movie theater, we're surrounded by computer science. At a time when computer science affects how we work and live, PLTW Computer Science empowers students in grades 9-12 to become creators, instead of merely consumers, of the technology all around them.

PLTW Computer Science engages students in real-world activities like creating an online art portal and using automation to process and analyze DNA-sequence data. These projects and problems challenge students to think big and help illustrate how intricately computer science is woven into our society.

As students work together to design solutions, they learn computational thinking - not just how to code - and transform themselves into builders of tech. The program's series of courses empowers students with in-demand knowledge and skills they will use in high school and for the rest of their lives, on any career path they take.

A few ways PLTW Computer Science students are applying their learning to make a difference:

- Creating problem-solving apps to meet the needs of clients
- Simulating large-scale problems and hypothesizing solutions
- Using code to manipulate images and automate the editing process