

PLTW Gateway Unit Descriptions

App Creators

This unit exposes students to computer science as a means of computationally analyzing and developing solutions to authentic problems through mobile app development, and conveys the positive impact of the application of computer science to other disciplines and to society.

Automation and Robotics

Students are given the opportunity to combine mechanisms with input and output devices to automate the mechanisms. Construction and programming skills are layered, and projects and the problem provide students the opportunity to connect their learning throughout the lessons in the unit. Students take on the role of interns, and work in teams to identify design requirements and create prototypes to meet the needs of clients. They also explore different aspects of automation and robotics, and experience how solving real-life problems involves the teamwork of mechanical engineers, software developers, and electrical engineers.

Computer Science for Innovators and Makers

Throughout the unit, students learn about programming for the physical world by blending hardware design and software development, allowing students to discover computer science concepts and skills by creating personally relevant, tangible, and shareable projects.

Design and Modeling

Students discover the design process and develop an understanding of the influence of creativity and innovation in their lives. They are then challenged and empowered to use and apply what they've learned throughout the unit to design a therapeutic toy for a child who has cerebral palsy.

Energy and the Environment

Students are challenged to think big and toward the future as they explore sustainable solutions to our energy needs and investigate the impact of energy on our lives and the world. They design and model alternative energy sources and evaluate options for reducing energy consumption.

Flight and Space

The exciting world of aerospace comes alive through the Flight and Space (FS) unit. Students become engineers as they design, prototype, and test models to learn about the science of flight and what it takes to travel and live in space. They solve real-world aviation and space challenges and plan a mission to Mars.

Green Architecture

Today's students have grown up in an age of "green" choices. In this unit, students learn how to apply this concept to the fields of architecture and construction by exploring dimensioning, measuring, and architectural sustainability as they design affordable housing units using Autodesk's® 3D architectural design software.

Magic of Electrons

Through hands-on projects, students explore electricity, the behavior and parts of atoms, and sensing devices. They learn knowledge and skills in basic circuitry design and examine the impact of electricity on the world around them.

Medical Detectives

Students play the role of real-life medical detectives as they collect and analyze medical data to diagnose disease. They solve medical mysteries through hands-on projects and labs, measure and interpret vital signs, examine nervous system structure and function, and investigate disease outbreaks.

Science of Technology

Science impacts the technology of yesterday, today, and the future. Students apply the concepts of physics, chemistry, and nanotechnology to STEM activities and projects, including making ice cream, cleaning up an oil spill, and discovering the properties of nano-materials.