pltw.org

PLTW

COMPUTER SCIENCE

PLTW Computer Science empowers students to become creators, instead of merely consumers of the technology all around them. The program's interdisciplinary courses engage students in compelling, real-world challenges as students work together to design solutions. They learn computational thinking – not just how to code – and become better thinkers and communicators. Students take from the courses in-demand knowledge and skills they will use in high school and for the rest of their lives, on any career path they take.

COURSES

Computer Science Essentials
With emphasis on computational thinking and collaboration, this year-long course provides an excellent entry point for students to begin or continue the PLTW Computer Science PreK-12 experience. Computer Science Essentials will expose students to a diverse set of computational thinking concepts, fundamentals, and tools, allowing them to gain understanding and build confidence.

Computer Science Principles
Using Python® as a primary tool, students learn the fundamentals of coding, data processing, data security, and task automation, while learning to contribute to an inclusive, safe, and ethical computing culture. The course promotes computational thinking and coding fundamentals and introduces computational tools that foster creativity. Computer Science Principles helps students develop programming expertise and explore the workings of the Internet. Projects and problems include app development, visualization of data, cybersecurity, and simulation. PLTW is recognized by the College Board as an endorsed provider of curriculum and professional development for AP® Computer Science Principles (AP CSP). This endorsement affirms that all components of PLTW CSP's offerings are aligned to the AP Curriculum Framework standards and the AP CSP assessment.

Computer Science A
Throughout the Computer Science A course experience, students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language. PLTW is recognized by the College Board as an endorsed provider of curriculum and professional development for AP® Computer Science A (AP CSA). This endorsement affirms that all components of PLTW CSA's offerings are aligned to the AP Curriculum Framework standards and the AP CSA assessment.

Course Spotlight: Cybersecurity
Cybersecurity introduces the tools and concepts of cybersecurity and encourages students to create solutions that allow people to share computing resources while protecting privacy. Nationally, computational resources are vulnerable and frequently attacked; in Cybersecurity, students use virtual labs to discover key concepts of the field. These labs progress from an individual computer to more and more complex network environments. This course raises students' knowledge of and commitment to ethical computing behavior. It also aims to develop students' skills as consumers, friends, citizens, and employees who can effectively contribute to communities with a dependable cyber-infrastructure that moves and processes information safely.

PLTW Capstone
Students engage in an open-ended research experience in the PLTW Capstone course, a culminating program for those completing PLTW's high school offerings. They collaborate in teams, designing and developing original solutions to well-defined and justified real-world problems.

> When I first started, I didn't know what a computer scientist looked like. I didn't know what someone in the industry could do. How did you get there? What did that job look like? PLTW really gave me that insight into, 'Here's a job path for you; here's how to get there.' PLTW showed me that path that I had no basis for before."
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> — Jacob Kinsey
> PLTW Alumnus

ASSESSMENTS

PLTW offers a first-of-its-kind summative assessment that measures both subject-matter knowledge and mastery of in-demand, transportable skills. In a rapidly changing economy, students with in-demand, transportable skills – including problem solving, critical and creative thinking, collaboration, communication, and ethical reasoning – are most likely to thrive throughout their education and careers. PLTW's Assessments are designed to mirror the transformative learning experience with results that impact your student's future.

Learn more at pltw.org/assessments or access our White Paper.

PROFESSIONAL DEVELOPMENT

PLTW Core Training is a learning experience that incorporates authentic, meaningful, and best-in-class facilitation practices that ensure the quality delivery of course content. All participants will interact and learn together in an environment that offers increased flexibility in the training format, expanded resources, exciting networking opportunities, and the engaging high-quality course content that teachers expect from PLTW. PLTW's Core Training supports and empowers teachers from diverse backgrounds to successfully facilitate the courses.

Learn more on pltw.org/training