



INFORMATION TECHNOLOGY PATHWAY: COMPUTER SCIENCE

<p>Year 1 Pathway Sequence</p>	<p>PLTW Computer Science + Software Engineering 1 (Concentrator) (Course 000972) (<i>Minimum math requirement: IM1A-B</i>) 1 trimester /12 week course Students will use visual, block-based programming and seamlessly transition to text-based programming with languages such as Python to create apps and develop websites, and learn how to make computers work together to put their design into practice. They'll apply computational thinking practices, build their vocabulary, and collaborate just as computing professionals do to create products that address topics and problems important to them. This course help students create a strong foundation to advance to Computer Science Principles, and Computer Science A, and beyond. This course meets PUSD elective credit.</p>		
<p>Year 2 Pathway Sequence</p>	<p>PLTW Computer Science + Software Engineering 2 (Concentrator) (Course 000972) Students will continue to use text-based programming and further develop the skills learned in CSSE 1 and transition into using Python as the primary tool that will be used in AP Computer Science Principles 1+2.</p>	<p>AP Computer Science Principles 1 (Capstone) (Course 001258) <i>(Minimum math requirement: IM2A-B)</i> 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. This course meets the UC "D" requirement as well as PUSD elective credit.</p>	<p>AP Computer Science Principles 2 (Capstone) (Course 001259)</p>
<p>Year 3 Pathway Sequence</p>	<p>AP Computer Science A 1* (Capstone) (Course 001056) Focuses on computing skills related to programming in Java. This course introduces students to computer science through programming. 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. This course meets the UC "C" requirement as well as PUSD math credit.</p>	<p>AP Computer Science A 2* (Capstone) (Course 001057)</p>	<p>Data Structures (Concentrator) (Course 001072) This course follows AP Computer Science A. It covers a more formal and in-depth study of algorithms, data structures, design and abstraction. The topics include Big-O analysis, exceptions, and advanced data structures (such as linked lists, stacks, queues, trees, heaps, sets and maps). This course may be used to meet the UC/CSU "G" requirement.</p>

All 'Project Lead The Way' courses are recognized as a respected academic program by UC/CSU and are UC "G" academic electives.

CTE Pathway completion: 20 credits in a single pathway, including 10 in a capstone course.