

Computer Science Essentials offers a focused curriculum designed around foundational computer science concepts, including computer systems, programming, networks, and data management. The course also introduces students to foundational computer science skills such as coding, troubleshooting, and being a responsible digital citizen.

Course topics include the history and impact of computers; careers in computer science; computing laws and ethics; bias and equity issues in computing; algorithms and coding; data storage, organization, and analysis; hardware and software; robotics; networks and the internet; cybersecurity and online safety; website design; and the use of abstraction in computing. Students discover new concepts through guided instruction and confirm their understanding in an interactive, feedback-rich environment.

A variety of activities encourage students to explore different aspects of computer science. Lab activities guide students through coding their own programs. Project and explore activities reinforce critical thinking, research, writing, and communication skills. In addition, project activities guide students through the development of different types of computer artifacts. In discussion activities, students conduct research on current computing topics and then exchange ideas with their peers. Practice activities provide additional opportunities for students to apply learned concepts and practice their writing, reasoning, and computer literacy skills.

This course is built to state standards.

This updated course was originally created for Apex Courses and is now available in Courseware.

Length: Two Semesters

Unit 1: Computers and Society

Unit 2: Programming

Unit 3: Digital Information

Unit 4: Developing Programs for Everyone

Unit 5: Semester Wrap-Up

Unit 6: Computing Systems

Unit 7: The Internet

Unit 8: Your Digital Responsibility

Unit 9: Semester Wrap-Up