CodeHS

AP CS Principles CSTA K-12 Computer Science Standards Alignment Overview

The AP CS Principles course is an introductory college-level computer science course introducing the basics of programming with Karel the Dog and JavaScript, the basics of designing a web page, how information and images are represented with computers, the functionality and impact of the Internet, and how to analyze and interpret data. Important Note: The AP CS Principles course is aligned to the College Board Framework, but also supports the the CSTA K-12 Computer Science Standards.

CSTA K-12 Computer Science Standards Concepts

Algorithms & Programming

Algorithms and programming are central to the AP CS Principles course. Students learn the core principles of developing their own algorithms and implementing them in the JavaScript programming language. Algorithms, variables, control, modularity, and program development are all taught in this course.

- Standards: 3A-AP-13, 3A-AP-14, 3A-AP-16, 3A-AP-17, 3B-AP-09, 3B-AP-10, 3B-AP-11, 3B-AP-12, 3B-AP-13, 3B-AP-14, 3B-AP-16

Computing Systems

Computing Systems is a core concept throughout the AP CS Principles course. Students learn about various computing devices and how humans interact with them, including devices that extend the capabilities of humans. Students learn about computer organization including the relationship between hardware and software. Troubleshooting computing systems is a core concept of the AP CS Principles course as well. Computing systems might not work as expected because of problems in the software. Students are expected to identify problems in their programs and fix them.

Data & Analysis

The AP CS Principles course teaches students how data is stored in a computer as an abstract representation. Students learn exactly how text and image data is organized and stored as physical bits in a computing system. Students also learn how sensors must convert physical data

into a digital representation that can be stored in a computer, and how data collection can be automated with sensors.

Impacts of Computing

Computing has had significant impacts in several fields. In this course, students learn about the positive and negative impacts computing innovations and the Internet have had on culture, social interactions, safety, and privacy. Students also learn the ethical considerations of sharing their code with others, and finding solutions to CodeHS exercises online.

Networks & the Internet

In The Internet unit, students learn learn about network communication and organization, Internet protocols, Internet addressing, the benefits of the packet-switched architecture of the Internet, and the effect of hierarchy and redundancy on the scalability and reliability of the Internet. Students learn about the importance of cybersecurity and the various security measures we take to protect information and privacy on the Internet.