



# California

## 2020 State of Computer Science Education: Illuminating Disparities

Computer science education is more important than ever. The COVID-19 pandemic has highlighted our society's reliance on computing and its power to help businesses innovate and adapt, yet at the same time has surfaced greater disparities for students studying computer science. Computing is the number one source of all new wages in our economy, and there are currently 400,000 open computing jobs across the United States. Yet the U.S. education system does not provide widespread access to this critical subject.

Although access to computer science is key to addressing the equity issues in society, only 47% of our nation's high schools teach foundational computer science. In addition, students from marginalized racial and ethnic groups, students in Title I schools, and students from rural areas are less likely to attend a school that provides access to this critical subject.

States are working to broaden participation in computer science by passing policies to make computer science a fundamental part of the K-12 education system. In addition to adopting more policies, state education leaders extend and innovate on previously adopted policies: continuing to fund

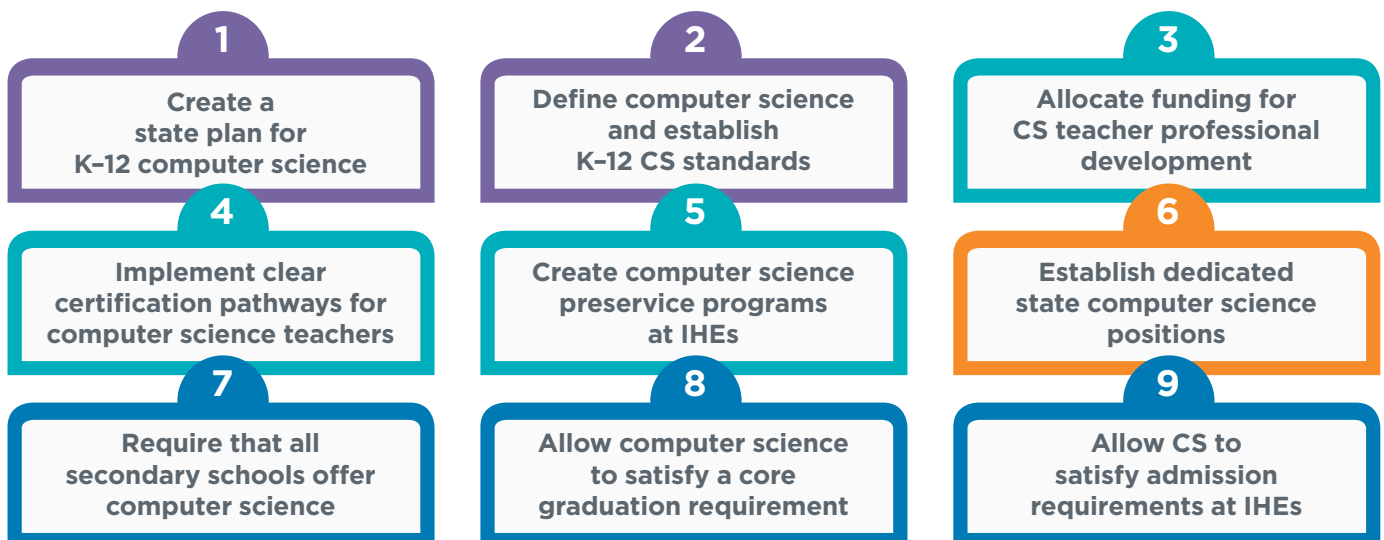
computer science education, supporting teachers and students, and providing leadership and guidance.

States that have adopted more of these nine policies have a larger percentage of high schools teaching computer science. States that have funded K-12 computer science professional learning have higher implementation rates than states that have not provided direct funding.



Pursuing an access agenda to K-12 computer science provides policymakers a rare opportunity to address equity, workforce, and education issues on a bipartisan basis. All nine policies can promote access to and equity within rigorous and engaging computer science courses when stakeholders make equity an explicit focus on policy development and implementation monitoring.

### Nine Policies to Make Computer Science Fundamental





# California Computer Science Policy

## State Plan

Yes

The California State Board of Education adopted the Computer Science Strategic Implementation Plan in 2019. The plan includes practices and recommendations for equitable outcomes, such as providing culturally responsive training materials to support educators.

## Standards

Yes

California adopted K-12 computer science standards in 2018. The introduction includes “Issues of Equity,” describing equity, access, and representation. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity. The California NGSS Curriculum Framework also includes major sections on computational thinking and computer science for educators.

## Funding

No

California has not provided dedicated state funding for computer science. Although SB 75 (FY 2019) appropriated \$22.1M to the Educator Workforce Investment Grant Program, including \$5M to support professional learning for computer science teachers, the state reallocated this funding for COVID-19 relief in April 2020.

## Certification

Yes

In California, teachers with existing licensure can obtain a supplementary authorization for PreK-12 through academic coursework.

## Preservice

No

California has not yet established programs at institutions of higher education to offer computer science to preservice teachers. The computer science teacher shortage can be addressed by exposing more preservice teachers to computer science during their required coursework or by creating specific pathways for computer science teachers.

## CS Supervisor

No

California does not yet have dedicated computer science positions in state or local education agencies. Creating a statewide computer science leadership position within the state education agency can help expand state-level implementation of computer science education initiatives. Similar positions at the local level could support districts’ expansion of course offerings and professional development.

## All HS Offer

No

California does not yet require that all secondary schools offer computer science. The state can support the expansion of computer science courses by adopting policies that require schools to offer a computer science course based on rigorous standards, with appropriate implementation timelines and allowing for remote and/or in-person courses.

## Grad Credit

District Decision

California passed a permissive and encouraging policy to allow computer science to count as a science or mathematics credit for graduation, but it is a district decision.

## IHE Admission

Yes

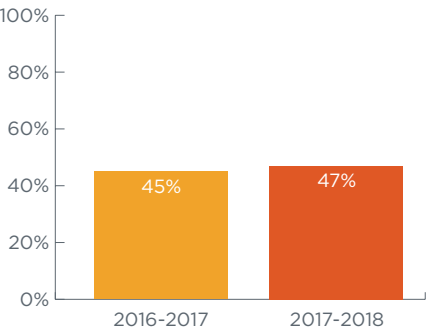
Approved computer science courses can count as the recommended third-year science course (area D) or as a mathematics credit (area C) required under the University of California system admissions criteria, which aligns with the high school graduation policy.

California is a member of the ECEP Alliance and has CSTA chapters.

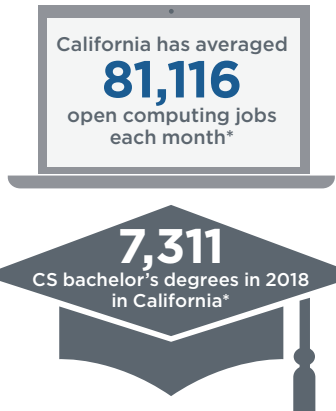
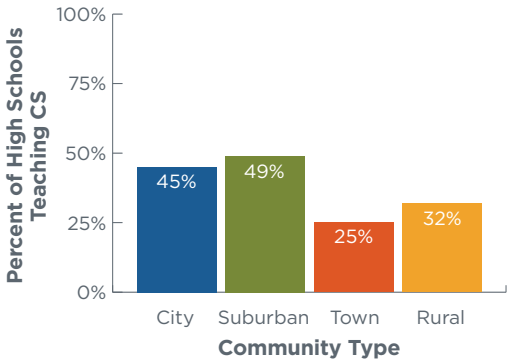


# Computer Science Access and Participation in California

## High Schools Teaching CS

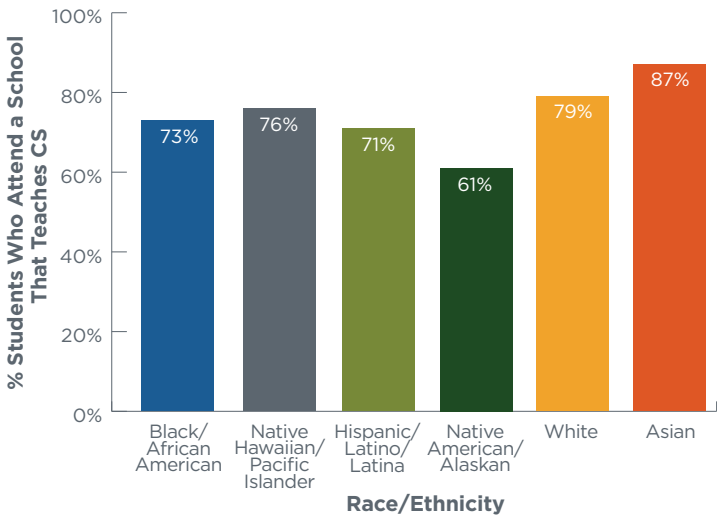


## Percent of High Schools Teaching CS by Community Type

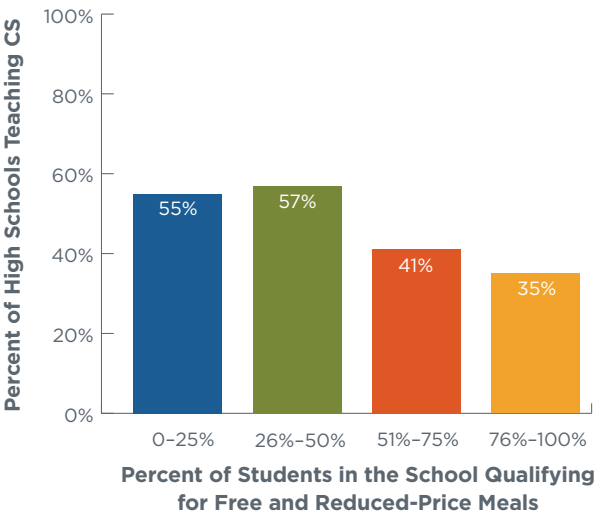


\* Sources: The Conference Board and the National Center for Education Statistics

## Race/Ethnicity and Access to Computer Science

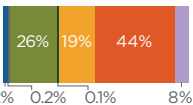


## Income Level and Access to CS

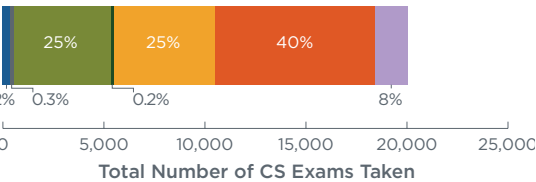


## AP CS Participation by Race/Ethnicity and Gender

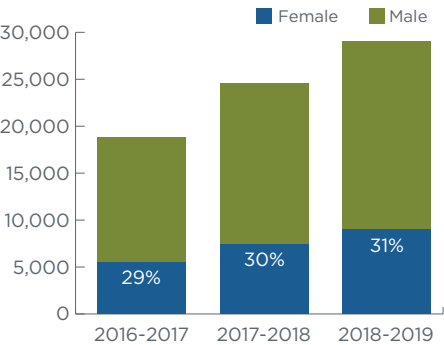
### Female Students



### Male Students



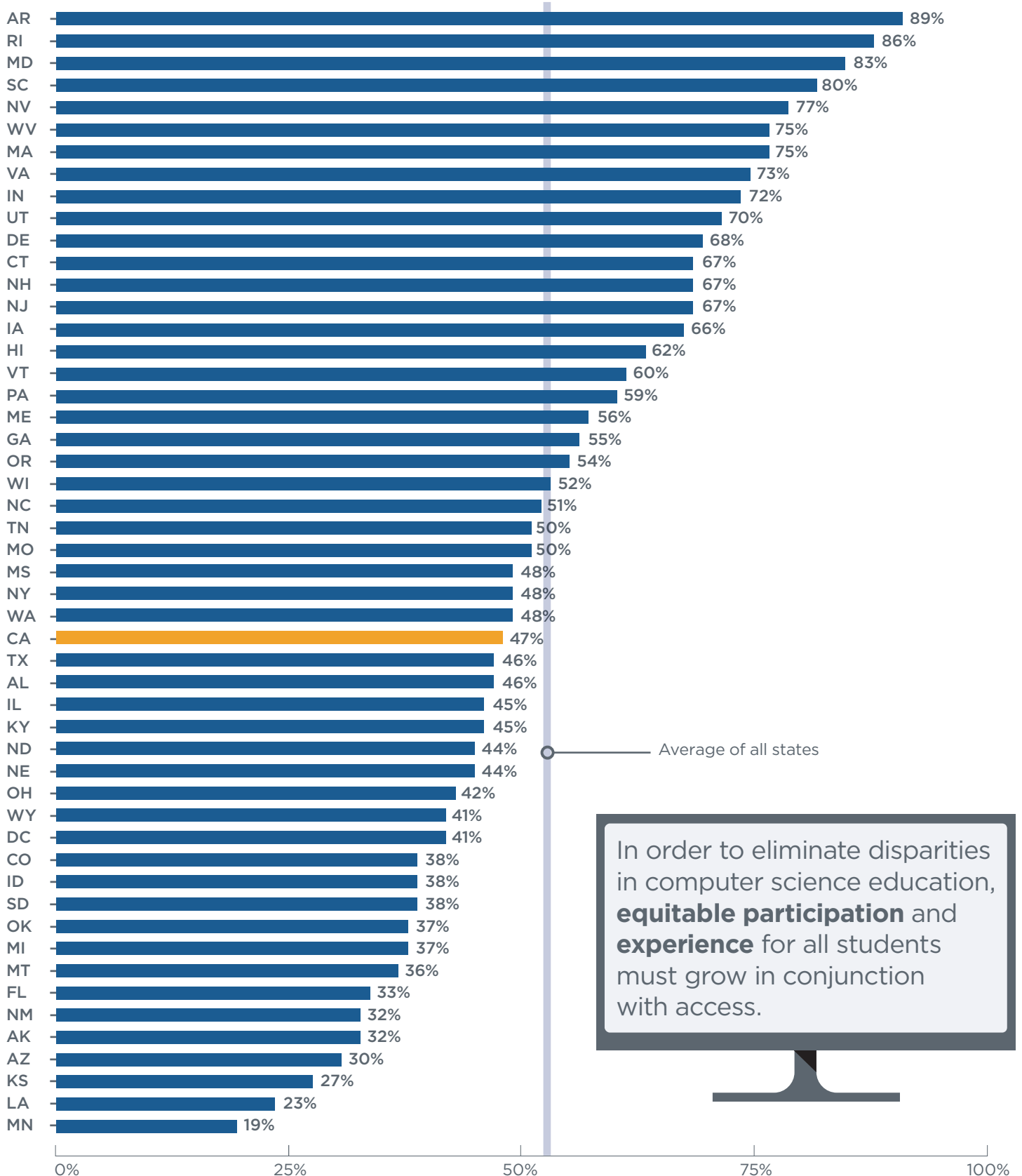
## AP CS Student Participation



Native American/Alaskan, Hispanic/Latino/Latina, and Native Hawaiian/Pacific Islander students are each 3 times less likely and Black/African American students are 4 times less likely than their white and Asian peers to take an AP CS exam when they attend a school that offers it.



# Percent of High Schools Teaching Computer Science by State



For more details on policy, access, and participation, see the full 2020 State of Computer Science Education report at [advocacy.code.org/stateofcs](https://advocacy.code.org/stateofcs)

