Ohio

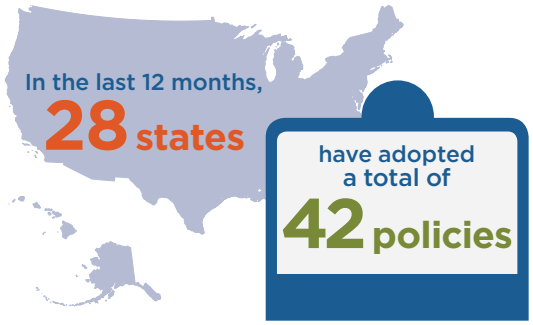
2020 State of Computer Science Education: Illuminating Disparities

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

1. Create a state plan for K–12 computer science
2. Define computer science and establish K–12 CS standards
3. Allocate funding for CS teacher professional development
4. Implement clear certification pathways for computer science teachers
5. Create computer science preservice programs at IHEs
6. Establish dedicated state computer science positions
7. Require that all secondary schools offer computer science
8. Allow computer science to satisfy a core graduation requirement
9. Allow CS to satisfy admission requirements at IHEs

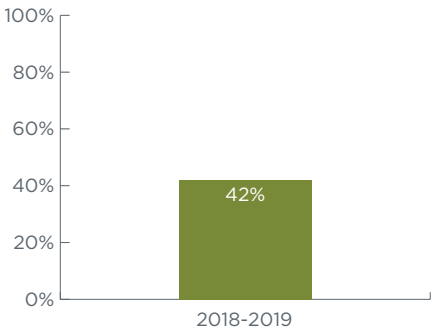
Ohio Computer Science Policy

State Plan No	Ohio is in the process of developing a state plan for K-12 computer science. A plan that articulates the goals for computer science, strategies for accomplishing the goals, and timelines for carrying out the strategies is important for making computer science a fundamental part of a state's education system.
Standards Yes	Ohio adopted K–12 computer science standards and a model curriculum in 2018. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.
Funding Yes	HB 166 (FY 2020) appropriated $1.5M for teachers to become credentialed in computer science. Awards prioritized educators assigned to schools with greater than 50% of students classified as economically disadvantaged.
Certification Yes	In Ohio, teachers with existing licensure can obtain a K–12 supplemental teaching license through passing the state content exam; teachers can also earn an initial license in computer science. Temporary revisions to teaching requirements allow licensed 7–12 teachers who completed approved professional development to teach computer science until 2021. The state provided dedicated funding to offset the cost of computer science certification
Preservice Yes	The Ohio Department of Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
CS Supervisor Yes	The Ohio Department of Education has a Computer Science Education Program Specialist.
All HS Offer No	Ohio 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 Yes	In Ohio, computer science course that addresses high school mathematics standards and focuses on algorithms for problem-solving can count as a mathematics, advanced mathematics, or advanced science credit for graduation. One credit of advanced computer science can also satisfy one unit of algebra 2/math 3 or equivalent or one unit of advanced science (excluding biology or life sciences), and a coding course can satisfy foreign (world) language credit in schools that require it for graduation.
IHE Admission No	Ohio does not yet allow computer science to count as a core admission requirement at institutions of higher education. Admission policies that do not include rigorous computer science courses as meeting a core entrance requirement, such as in mathematics or science, discourage students from taking such courses in secondary education. State leaders can work with institutions of higher education to ensure credit and articulation policies align with secondary school graduation requirements.

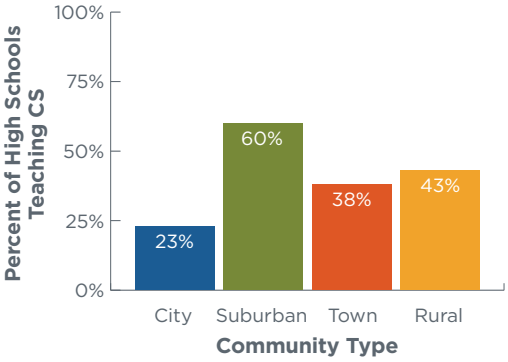
Ohio is a member of the ECEP Alliance and has a CSTA chapter

Computer Science Access and Participation in Ohio

High Schools Teaching CS



Percent of High Schools Teaching CS by Community Type

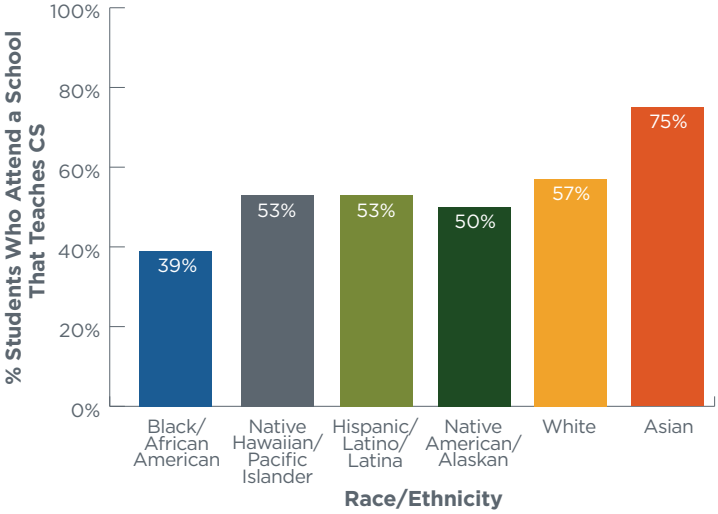


Ohio has averaged **17,273** open computing jobs each month*

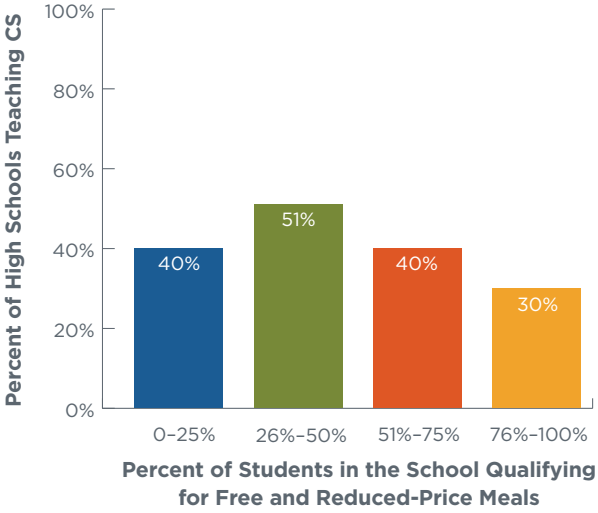
1,584 Bachelor's degrees in 2018 in Ohio*

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

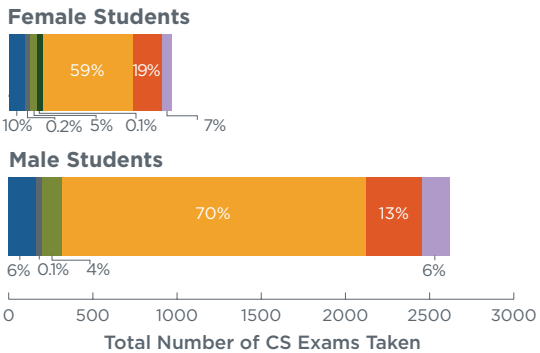
Race/Ethnicity and Access to Computer Science



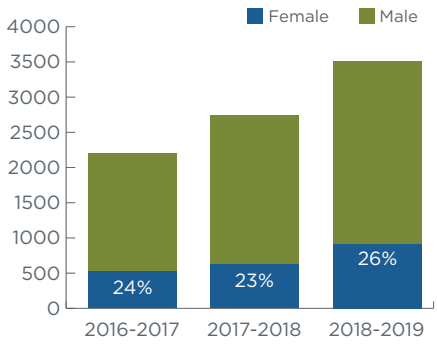
Income Level and Access to CS



AP CS Participation by Race/Ethnicity and Gender

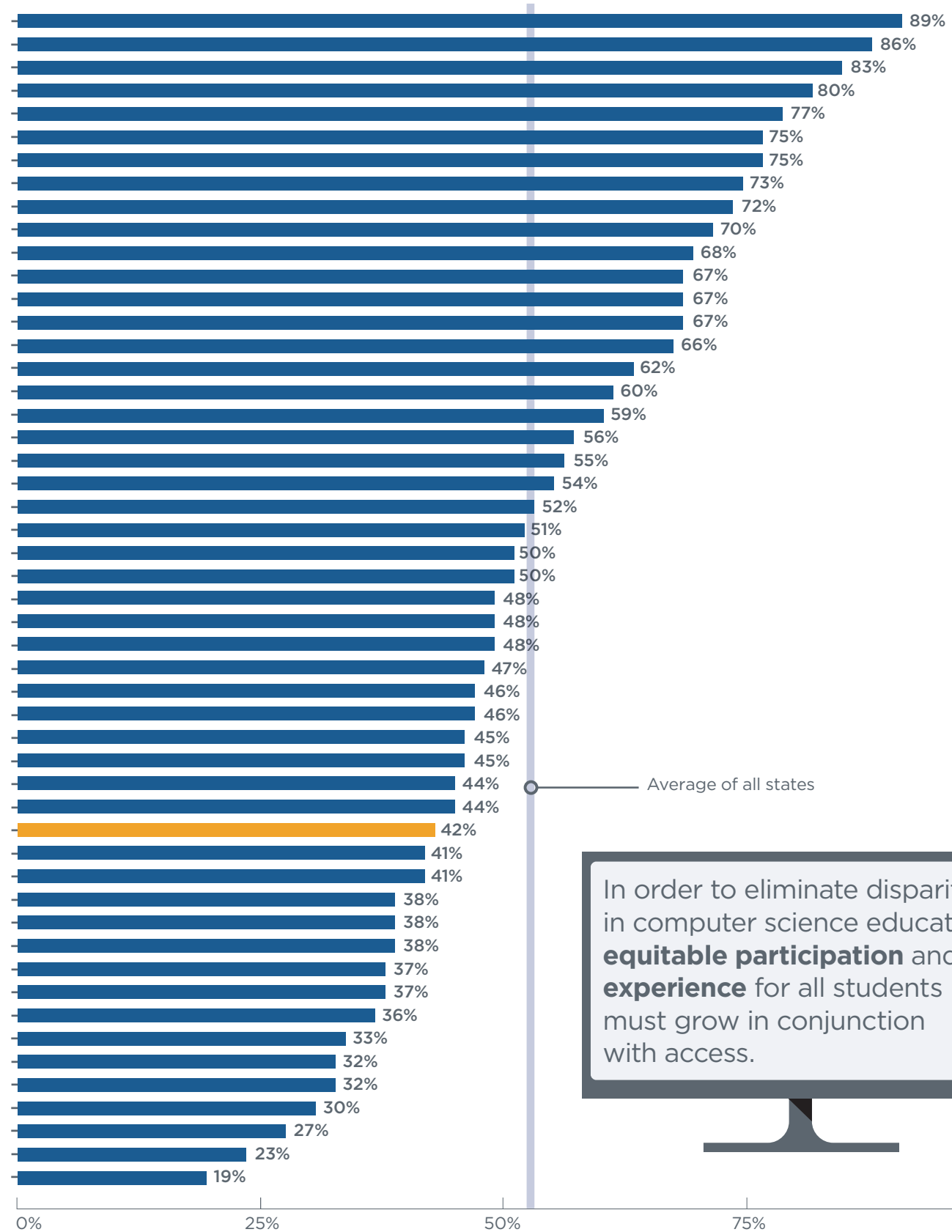


AP CS Student Participation



Black/African American students are 1.5 times less likely than their white and Asian peers to attend a school that offers AP CS, and 2 times less likely to take an AP CS exam when they attend a school that offers it. Native American/Alaskan 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



In order to eliminate disparities in computer science education, **equitable participation** and **experience** for all students must grow in conjunction with access.

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

Advocacy Coalition

ECEP Expanding Computing Education Pathways

CSTA