



Kentucky

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

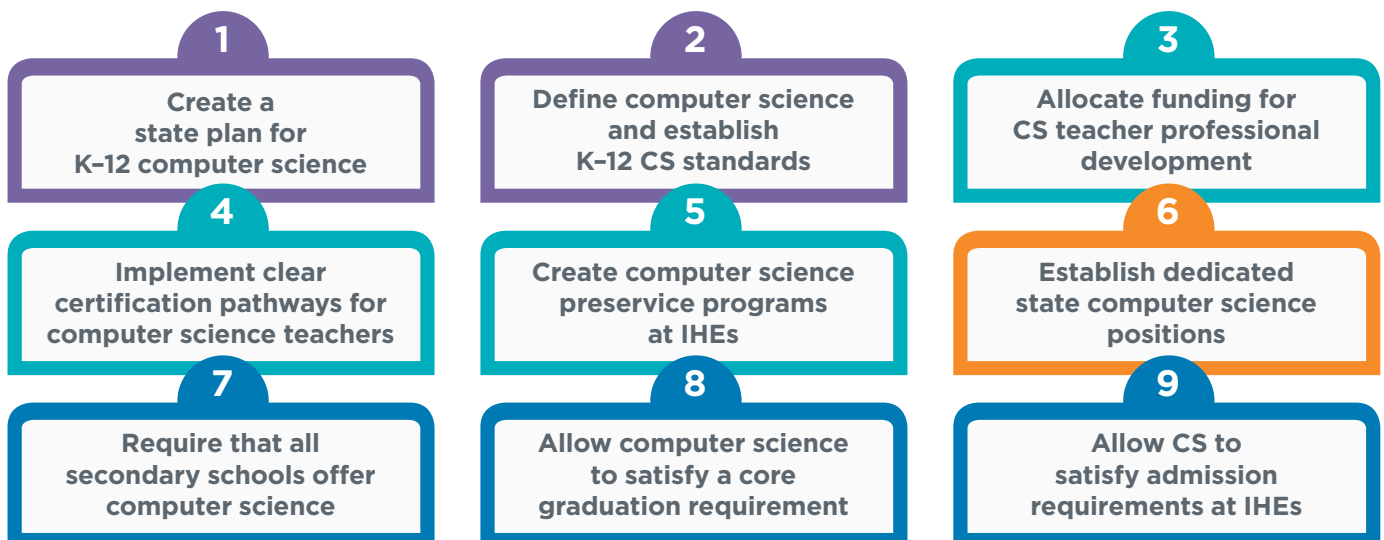
computer science education, supporting teachers and students, and providing leadership and guidance.

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





Kentucky Computer Science Policy

State Plan

No

Kentucky is in the process of creating a 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

Kentucky adopted K-12 computer science standards in 2019.

Funding

Yes

HB 2000 (FY 2020) dedicated \$800K to the CS and IT academy to address growth in computer science learning. The funding is dedicated to student exam vouchers, teacher K-12 computer science professional learning, and teacher industry certifications.

Certification

Yes

In Kentucky, teachers with existing licensure can obtain an 8-12 endorsement in computer science.

Preservice

No

Kentucky has not yet established programs at IHEs 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.

CS Supervisor

Yes

The Kentucky Department of Education has a dedicated K-12 Computer Science Lead.

All HS Offer

No

Kentucky 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

Kentucky passed a permissive and encouraging policy to allow computer science to count as an elective science credit or a fourth-year mathematics credit for graduation, but it is a district decision. The course must involve computational thinking, problem-solving, computer programming, and a significant emphasis on the science and engineering practices.

IHE Admission

Yes

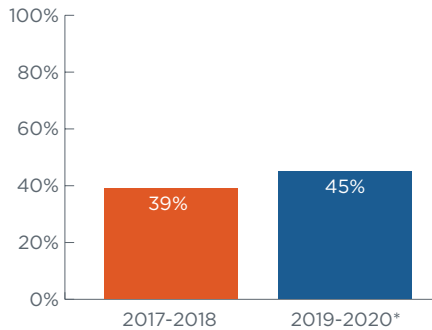
In Kentucky, computer science can count as a mathematics credit required for admission at institutions of higher education if the K-12 district allows the student to fulfill a mathematics graduation credit via the computer science course.

Kentucky has CSTA chapters.



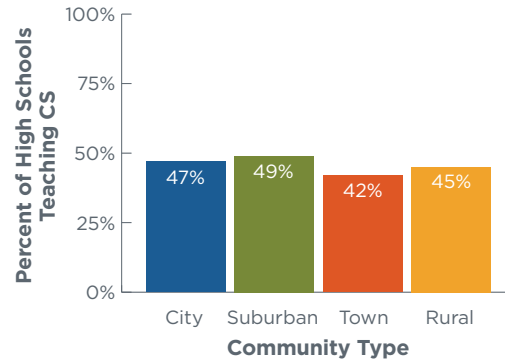
Computer Science Access and Participation in Kentucky

High Schools Teaching CS



* Data was not collected for the 2018-2019 school year

Percent of High Schools Teaching CS by Community Type



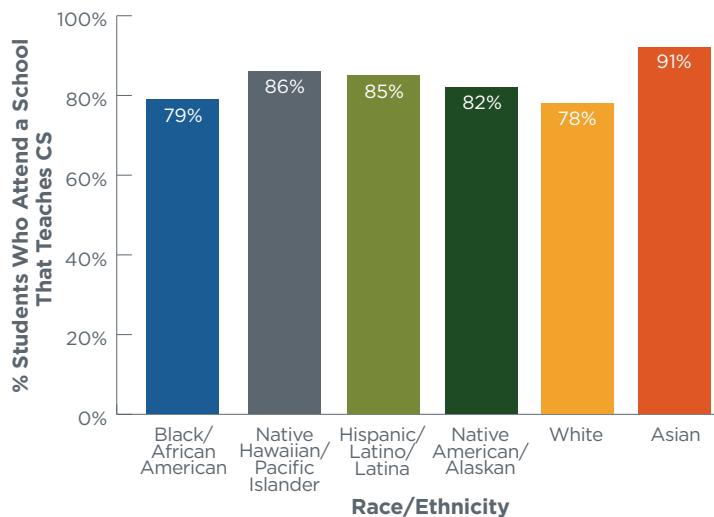
Kentucky has averaged
3,594
open computing jobs
each month*

581

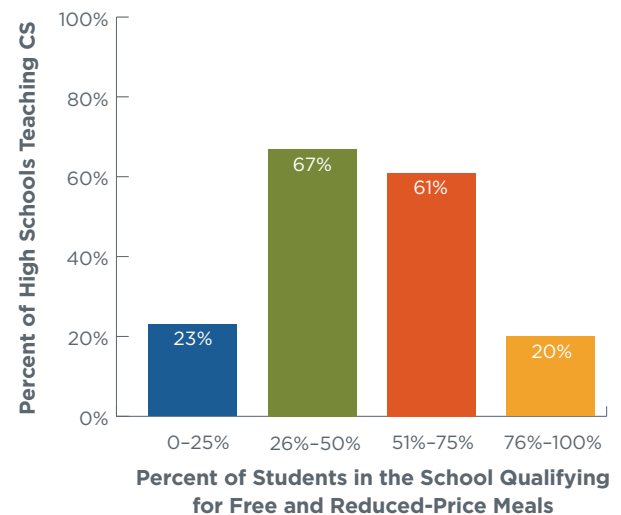
CS bachelor's degrees
in 2018 in Kentucky*

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

Race/Ethnicity and Access to Computer Science

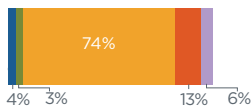


Income Level and Access to CS

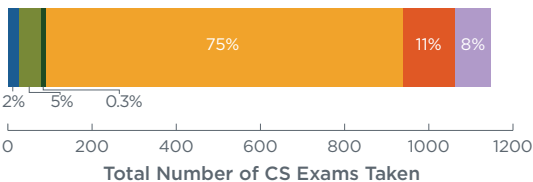


AP CS Participation by Race/Ethnicity and Gender

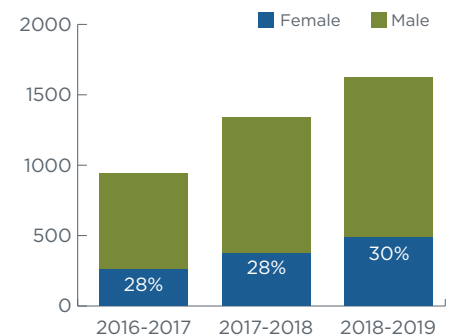
Female Students



Male Students



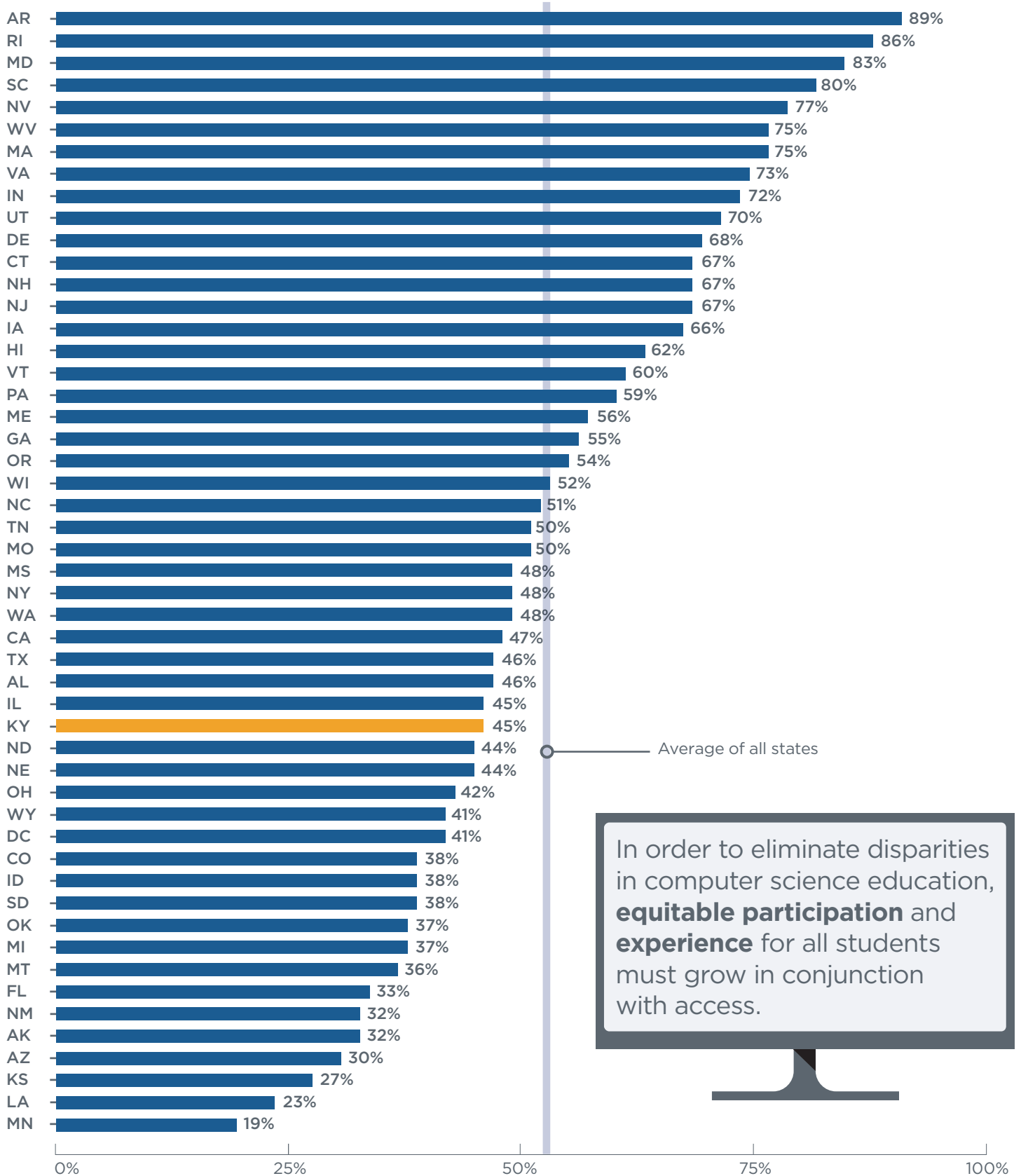
AP CS Student Participation



Hispanic/Latino/Latina students are 1.5 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



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

