Advocacy Coalition

CSTA

ECEP Expanding Computing Education Pathways

2022

State of Computer Science Education

UNDERSTANDING OUR NATIONAL IMPERATIVE

Thank You for Helping to Build **a Movement.**

The Code.org Advocacy Coalition, Computer Science Teachers Association, and the Expanding Computing Education Pathways Alliance wish to thank the hundreds of thousands of local champions and stakeholders, including teachers, community members, researchers, nonprofits, universities, corporations, and government institutions who have supported the vision that every student in every school deserves the opportunity to learn computer science.

Thank you for your support of this movement.

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The Citadel
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Unruly Studios
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Utah Tech Council
Virginia Technology and Engineering Education Association
Washington STEM
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Executive Summary

The tremendous growth of computer science (CS) education has significantly slowed during the COVID-19 pandemic. While many school buildings were closed or offering hybrid learning for much of 2020 and 2021, few schools were able to add classes to the curriculum. Now, in 2022, it is time for policymakers to reassess the knowledge, skills, and curricula that will engage students, support learning objectives, and prepare students for their post-school lives.

Just over half (53%) of high schools in the United States (U.S.) offer a single computer science course. Although this represents significant growth (from 35% in 2018), the number of schools offering computer science—a foundational subject that is critical to the nation's economic and security health—has grown by just two percent in the past year.

State and federal policy is poised to accelerate growth in computer science education by reexamining the foundational needs for our students from kindergarten through high school graduation. Policymakers and school decision-makers must answer this call to ensure all students have equitable access to computer science education. For the first time, over half of U.S. states now require computer science to be taught in all of their high schools, with the majority of those states also requiring it in their elementary schools as well.

Business leaders, unions, and nonprofits all agree on the importance of computer science education. In July, over 800 CEOs signed a letter encouraging states to make computer science part of the K–12 curriculum, and fifty governors of U.S. states and territories signed the Governors' Compact for Computer Science, committing to expanding computer science education in their states.

In addition to the nine policies to make computer science foundational, graduation requirements have made headway in bringing unprecedented numbers of young women and students from underrepresented groups into the computer science classroom. The ***2022 State of Computer Science Education: Understanding Our National Imperative*** provides data and guidance for implementing a computer science graduation requirement policy.

Highlights related to access and participation in foundational computer science include:

- **53% of U.S. high schools offer foundational computer science**[1] (up from 51% last year), **but disparities in access persist**. Rural schools, urban schools, and schools with high percentages of economically disadvantaged students continue to be less likely to offer foundational computer science; Black/African American students, Hispanic/Latina/Latino/Latinx students, and Native American/Alaskan students are less likely to attend a school that offers foundational computer science.
- Across 36 states, **5.6% of high school students** are enrolled in foundational computer science (up from 4.7% last year)
- Nationally, Black/African American, Native American/Alaskan, and Native Hawaiian/Pacific Islander students **are represented in foundational computer science courses at similar rates** as their overall population. In many states, however, disparities still exist. **Hispanic/Latina/Latino/Latinx high school students are 1.5 times less likely** than their white and Asian peers to enroll in foundational computer science, even when they attend a school that offers it.
- **English language learners, students with disabilities, and economically disadvantaged students are underrepresented** in foundational computer science compared to their overall population.
- Despite a national average participation rate of **just 32% by young women in high school foundational computer science**, three states (MD, MS, and SC) have above 40% participation in foundational computer science courses. These states each have either a computer science graduation requirement in place, or computer science is the primary route to satisfying an existing requirement.

[1] Foundational computer science is defined as a course offered during the school day that includes a minimum amount of time applying learned concepts through programming or coding. See National Momentum: Access and Participation for more details.

Highlights related to state policy adoption include:

- States that have adopted **six or more of the nine policies, on average, have 68%** of their high schools offering foundational computer science, compared with 48% in states that have adopted fewer than six policies;
- **Half of all states** have now adopted at least seven of the nine policies;
- During the past year, 23 states adopted or updated 35 policies;
- Four states (KS, MO, NE, and TN) **added requirements that schools offer computer science**, bringing the total number of such states to 27;
- Two states (NE, TN) joined Arkansas, Nevada, and South Carolina to **require that students take a computer science course to graduate high school**;
- After South Carolina implemented its graduation requirement for computer science, graduation rates increased as a whole and for every racial and ethnic group tracked by the state;
- Over $50M was allocated to fund computer science across 18 states; and
- Washington state adopted all nine policy recommendations, joining Alabama, Arkansas, Idaho, Indiana, Maryland, and Nevada.

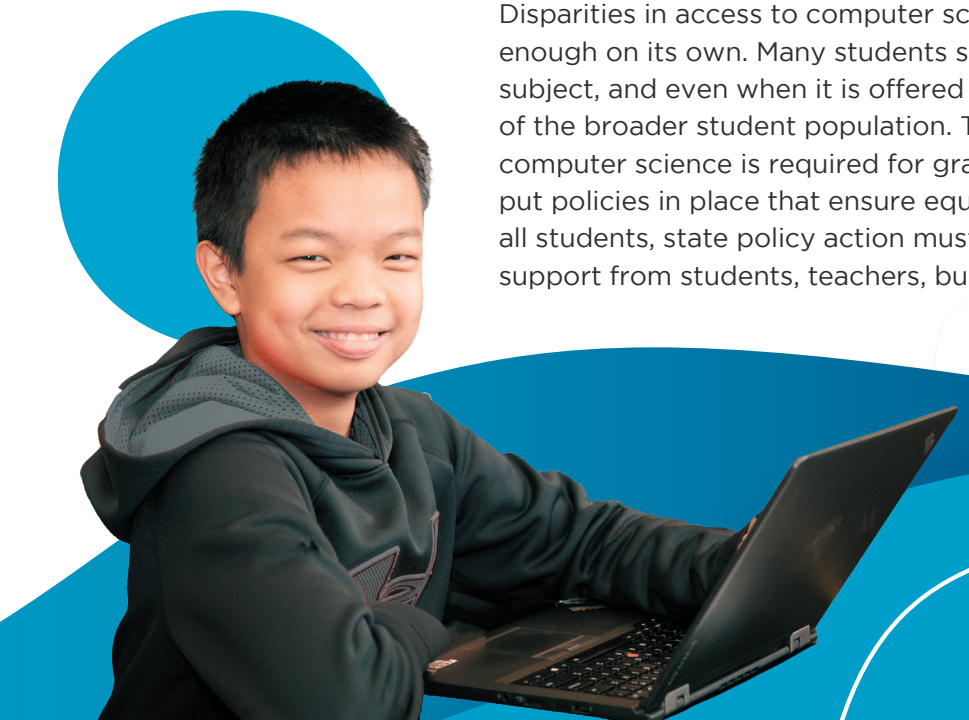
Nine Policies to Make Computer Science Fundamental

1. **Create a state plan** for K-12 computer science
2. Define computer science and establish rigorous **K-12 computer science standards**
3. **Allocate funding** for computer science teacher professional learning
4. Implement clear **certification pathways** for computer science teachers
5. **Create preservice programs** in computer science at higher education institutions
6. **Establish computer science supervisor** positions in education agencies
7. Require that **all high schools offer** computer science
8. Allow a computer science credit to satisfy a **core graduation requirement**
9. Allow computer science to satisfy a **higher education admission** requirement

Policy Principles

- **Clarity**
- **Capacity**
- **Leadership**
- **Sustainability**
- **Equity and Diversity***

*Equity and Diversity should be incorporated in each of the nine policies.



Disparities in access to computer science remain, and momentum is not enough on its own. Many students still do not have access to this foundational subject, and even when it is offered in schools, the enrollment is not reflective of the broader student population. The exception is in states in which computer science is required for graduation, further highlighting the need to put policies in place that ensure equitable access. To create opportunity for all students, state policy action must continue to build on the groundswell of support from students, teachers, business leaders, and governors.

Introduction

The ***2022 State of Computer Science Education: Understanding Our National Imperative***, now in its 6th year, provides an update on national and state-level computer science education policy, access, and participation. The report is a collaboration of the Code.org Advocacy Coalition, the Computer Science Teachers Association (CSTA), and the Expanding Computing Education Pathways (ECEP) Alliance and made possible through a grant from the Cognizant Foundation.

This report reflects on the past year's progress in K–12 computer science education, including:

- Updated data on access to computer science courses in high schools across the U.S., including participation rates by demographic groups;
- A description of nine recommended state policies to expand computer science education equitably;
- Summaries of policy, access, and participation data for each state; and
- A summary of national trends.

New aspects of this year's report include:

- A discussion of computer science as a graduation requirement and results from leading states in this policy area;
- "Why CS," a description of the national imperative to include computer science as part of the K–12 curriculum in schools; and
- Outcomes from state policies enacted.

The State of K-12 Education Over the Past Year

As students return to school in person and full time, teachers, advocates, and policymakers have both the opportunity and the challenge to reimagine education for students. The effects of learning loss over the past two years, as well as economic and political developments, require unique solutions to engage students in academics and prepare them for the world ahead.

To address these challenges, computer science education is more important than ever.

Computer science content both engages students academically and provides them with the foundational skills and knowledge they need to be successful in other subject areas.[2] Multiple studies demonstrate that learning computer science correlates with stronger outcomes for students in math, science, and reading.[3] As schools find ways to address students' educational needs, computer science should be a crucial component of helping students develop critical thinking and problem-solving skills. A comprehensive approach to providing computer science education opportunities for every student can help address some of the most pressing needs facing K–12 education.

Why Study Computer Science?

The challenges of the pandemic have made computer science more important than ever—for our economy, our security, and our lives more generally. Computer science engages students in school, supports learning in other subject areas, and provides pathways for future opportunities for students.

Despite the meaningful connection between computer science learning and student success, only half of U.S. high schools teach it. Students without this opportunity leave high school at a disadvantage compared to their peers.[4] To level the playing field, it is crucial that all students have the opportunity to take a foundational computer science course at their high school.

The data illustrates how computer science is critical for states, districts, and schools responsible for educating and preparing our young citizens.

[2] Code.org (2020), CS helps students outperform in school, college, and workplace.
[3] Ibid
[4] Code.org (2016), Computing occupations are now the #1 source of new wages in America.

Computer Science Engages Students

Students enjoy computer science and want to learn it. More high school students like computer science classes than any other subject outside the arts.[5]

As younger generations are born into and raised in a technologically advanced society, today's students understand that computer science will be crucial for their careers and lives.[6] We have an opportunity to engage students in this increasingly important subject. It is up to decision-makers to seize this opportunity.

Computer Science Supports Other Learning

Computer science exercises students' analytical, problem-solving, and critical thinking skills. These skills are valuable in all school subjects and throughout life.

Teachers and students worldwide are grappling with learning loss from the past two years due to the COVID-19 pandemic. Instruction in computer science provides a unique opportunity to support students' development of core skills. Multiple studies[7] indicate that students who learn computer science perform better in reading, math, and science in primary school, score better on standardized AP exams in secondary school, are 17% more likely to enroll in a university, and perform better at problem-solving.

[5] Code.org (2016), The class students like most.
[6] Google & Gallup (2017), Computer science learning: Closing the gap: Rural small town school districts.
[7] Code.org (2020), CS helps students outperform in school, college, and workplace.

Earlier Is Better

To truly prepare all students for the jobs available both now and in the future, we must be proactive in engaging students in those crucial skills and knowledge. Unfortunately, students as young as six conceive stereotypes about who is interested in computer science which can have negative impacts on their desire to try computer science.[8]

Adults also play a prominent role in determining a student's interest in learning CS. Students whose parents or teachers told them that they would be good at computer science are 2.5–3 times more likely to be interested in learning it in the future.[9] Existing research shows that when students have opportunities to learn computer science, their attitudes toward it become more positive.[10] That applies across racial and ethnic groups as well as gender.

Computer science courses are important for students in high school, but earlier opportunities and encouragement in the elementary grades provide the foundation for building a successful K-12 pipeline.

Stakeholders Want Computer Science

Students are not the only ones who want to learn computer science. More than two-thirds of parents and caregivers believe it is "important or very important" for their child to learn computer science, with Black parents and caregivers showing the most support.[11] Parents and caregivers see the value of their child learning computer science and believe that offering computer science is a good use of resources at their child's school.[12]

School leaders also see computer science as important, with most principals and superintendents agreeing that offering CS is more important than or just as important as required courses like math, science, history, and English.[13] Further, a majority of educators feel that students should be required to take computer science in schools when it is available.

[8] UW News (2021), Kids, teens believe girls aren't interested in computer science, study shows.
[9] Google & Gallup (2017), Encouraging Students Toward Computer Science Learning.
[10] Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools.
[11] Ibid
[12] Google & Gallup (2016), Trends in the State of Computer Science in U.S. K-12 Schools.
[13] Ibid

Support from multiple and diverse stakeholders provides the momentum and support to make universal computer science education opportunities a reality.

Computer Science Is Where the Jobs Are

Computer science jobs are growing and lucrative, and these workers are in high demand. Computing occupations are the #1 source of new wages[14] in America—that's 16%[15] of all new wages—and computer science accounts for the majority of new STEM jobs.[16] In the Midwest, mid-tech jobs are increasing,[17] and 91% of open software jobs are outside Silicon Valley.[18] Computer science jobs are not the only jobs that require computer science skills. Many of the top jobs in America involve computer science to some extent.[19] Twice as many Americans use computing in their jobs than previously reported, and half of those are in non-STEM fields, such as fashion, banking, or agriculture.

On average, a computer science degree from ANY university earns a significantly higher financial return on investment than an arts and humanities degree from even the best schools.[20]

Decision-makers must commit to building a successful K–12 pipeline. Continued and increased support from diverse stakeholders provides the momentum to make universal computer science education opportunities a reality.

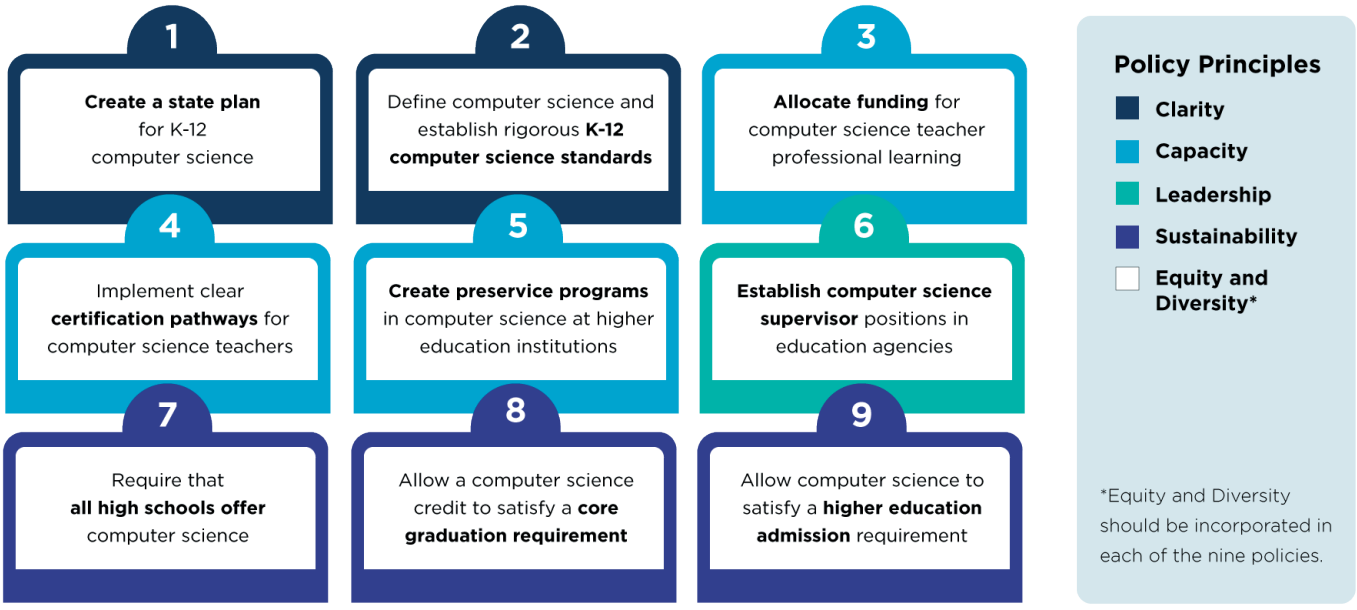
[14] Code.org (2016), Computing occupations are now the #1 source of new wages in America.
[15] Code.org (2016), 16% of all new wages in the U.S. are in computer science.
[16] Code.org (2014), What % of STEM Should Be Computer Science?
[17] Quartz (2018), The American Midwest is quickly becoming a blue-collar version of Silicon Valley.
[18] Inc. (2016), Report: 91 Percent of Vacant Software Jobs Are Outside Silicon Valley.
[19] Glassdoor (2022), 50 Best Jobs in America for 2022.
[20] The Economist (2015), It depends what you study, not where.

Nine Policies to Make Computer Science Foundational

The Code.org Advocacy Coalition developed nine policy recommendations to make computer science a fundamental part of the state education system.[21] The policies support a vision built on five principles: Equity and Diversity, Clarity, Capacity, Leadership, and Sustainability. All nine policies promote access to and equity within rigorous and engaging computer science courses. The Computer Science Education Policy chapter describes major policy initiatives in states in greater detail.

Clarity around the definition of computer science, shared goals, and strategies strengthens state efforts to expand access to computer science. School capacity for offering computer science courses is dependent on the availability of qualified teachers and thus reliant upon state-level resources to prepare preservice and inservice computer science teachers. State, district, and school-level leadership are essential for guiding implementation. Creating space for computer science in schools—by requiring schools to offer it or allowing students to apply the course toward graduation requirements—ensures the sustainability of computer science initiatives.

Prioritizing equity and diversity requires advocates and policymakers to consider the systemic factors influencing the diversity of students in computer science education. Students from marginalized racial or ethnic groups underrepresented in computer science are less likely to have access to high-quality computer science courses. If disparities are unaddressed, we will miss out on the innovations and contributions from diverse creators. Equity and diversity are overarching values reflected in each of the nine policies and must be specifically addressed in policy development to avoid perpetuating disparities.



These nine policies contribute to building and sustaining a comprehensive state policy framework that expands the teaching and learning of computer science. We do not intend for all states to enact the policies in the same way. We encourage state policymakers, advocates, and local education leaders to reflect on these policies within the context of their state while maintaining a strong focus on implementation fidelity and equitable outcomes for every student.

[21] Code.org (2021), Nine policy ideas to make computer science fundamental to K–12 education.

How to Use This Report

Data plays a vital role in school, district, and statewide computer science advocacy. This report is intended to serve as one component of your toolkit for change efforts and strategic planning. Pairing the data in this report with the perspectives of diverse stakeholders with local context is a powerful way to develop or revise your state advocacy plan. As you review your state's data in this report, we suggest that you consider the following questions:

Audience

Educators, policymakers, industry leaders, and community members have different roles in expanding computer science education.

- How will you tailor your message to each audience?
- Who needs to know about this data, and why?
- How will you share the data with specific audiences in a manner that recognizes their unique contributions and invites them to participate in computer science equity efforts?

Advocacy

Consider the opportunities that all students have to access computer science as well as ways to broaden participation for all students. Increasing diversity in computer science requires that advocates comprehensively understand which students are underrepresented and the root causes for these disparities.

- How will you use the data in this report to make sense of disparities in computer science? What actions will your team take to address the disparities highlighted in the data?
- How will you engage individuals from underrepresented populations to help develop strategies for mitigating disparities in access and participation?
- How might the data in this report advance policy adoption and implementation in your state?

Resources to Help You Leverage This Report

- The ECEP Alliance and NCWIT Summit Guide
- Code.org and ECEP's State Computer Science Planning Toolkit
- CSTA's Resources and Guidance: CSTA Standards for CS Teachers
- The ECEP Alliance Landscape Report Toolkit

Links to resources are in Appendix 4.

National Momentum: **Policy and Implementation**

This chapter includes a discussion of support from state governors, policies underway from the federal government, and challenges and opportunities facing computer science education.

"The U.S. has 700,000 open computing jobs–but only 5% of high school students study computer science per year.

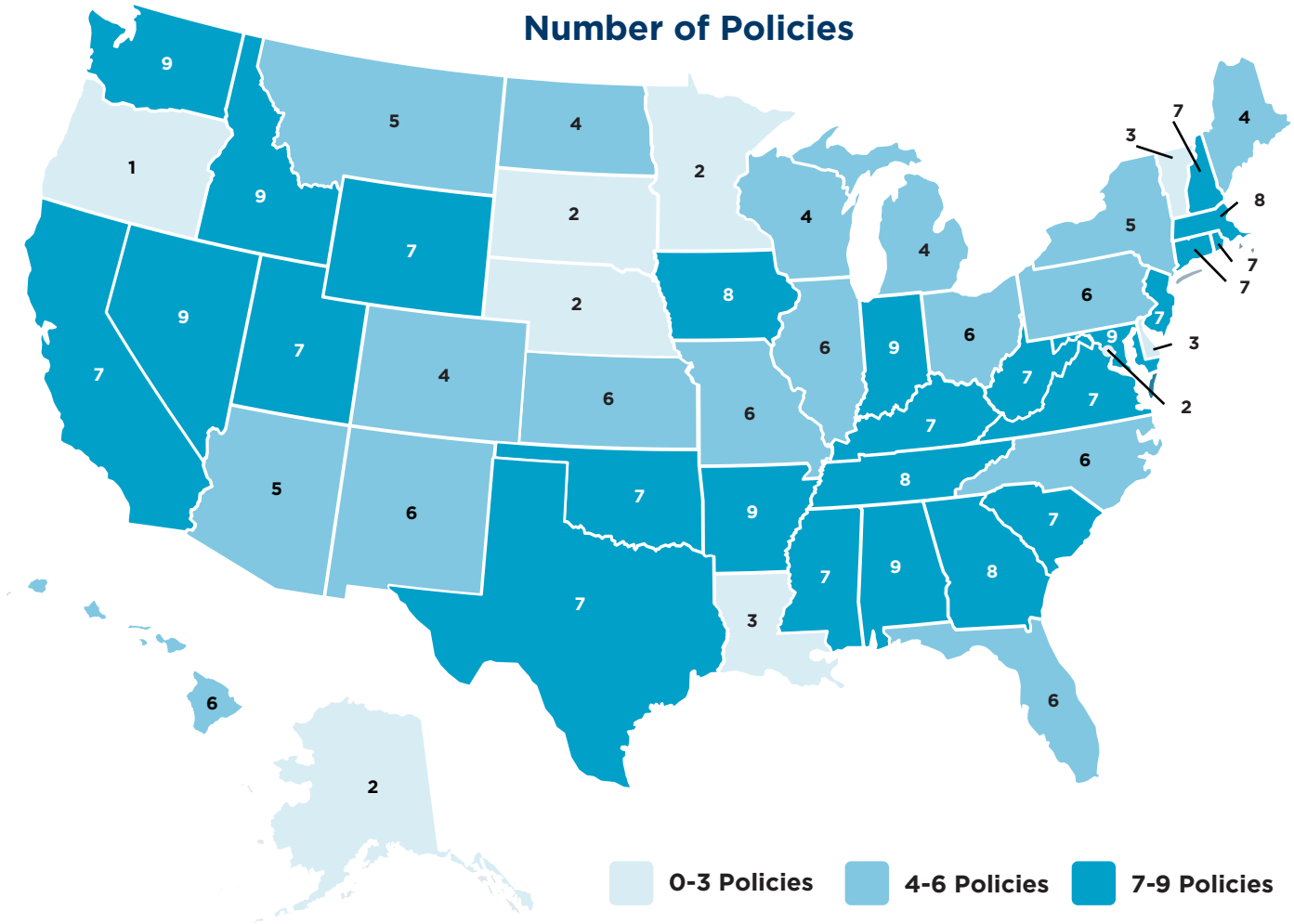
In NJ, we've greatly expanded computer science education and stand with Code.org as they call on states to improve access to computer science."

NEW JERSEY GOVERNOR PHIL MURPHY (D)

In 2022, 23 states have adopted or updated 35 policies to make computer science foundational, including 18 states that funded computer science education. Half of all states have now adopted at least seven of the nine policy recommendations. As more states continue to enact policies, the focus remains on encouraging equitable access and participation in this critical subject area.

Highlights from the past year include:

- Washington joined Alabama, Arkansas, Idaho, Indiana, Maryland, and Nevada as the only states to adopt all nine policies.
- 37 states have adopted at least five of the recommended nine policies.
- 18 have adopted seven or eight policies—California, Connecticut, Georgia, Iowa, Kentucky, Massachusetts, Mississippi, New Hampshire, New Jersey, Oklahoma, Rhode Island, South Carolina, Tennessee, Texas, Utah, Virginia, West Virginia, and Wyoming.
- Missouri adopted the most policies in 2022, with four. Kansas adopted three, and Arizona, California, Illinois, Iowa, Mississippi, Tennessee, and Washington each adopted two.
- More than $51M was allocated for computer science in state budgets at the time this report was published in 2022.



"A record number of governors have signed on to the National Governors Association K-12 computer science compact. To close the skills gap in Arizona, we've established computer science education standards and partnered with industry leaders."

ARIZONA GOVERNOR DOUG DUCEY (R)

Governors Sign Historic Compact for Computer Science

In October 2021, Arkansas Governor Asa Hutchinson announced that his 2022 initiative as chairman of the National Governors Association would be computer science education.

The initiative included convening governors and education leaders throughout the year to learn more and discuss plans for computer science education, outlining goals for the initiative, and producing resources for Governors to implement plans for their state.

The major outcome of the initiative was a compact in which Governors agreed to take action to expand computer science education opportunities for students in their state (see insert on page 17). Governors of fifty U.S. states and territories signed on to the compact, which included potential strategies aligned to the Code.org Advocacy Coalition's nine policy priorities, including:

- Increasing the number of high schools offering computer science courses;
- Allocating state or territory funding to K-12 computer science education;
- Creating pathways to postsecondary success in computing and related careers; and
- Providing equitable access to computer science for all students.

The initiative and compact demonstrated the strong momentum and bipartisan nature of computer science education. With unprecedented state executive support behind increasing opportunities, states should continue to build upon this momentum in the coming year.

CEOs for CS

The past year also saw unprecedented support from business, nonprofit, and community leaders advocating for computer science education. In July 2022, a letter encouraging governors and education leaders to make computer science part of the standard K-12 curriculum across the U.S. was released with more than 800 signatories (see insert on page 14). Among the signatories were CEOs of Fortune 500 companies such as Nike, John Deere, and Delta Airlines, as well as nonprofit and association leaders such as the National Education Association, American Federation of Teachers, and Hispanic Heritage Foundation. A full list of signatories can be found at CEOsforCS.com.

Federal Policy

For the first time, a national program established exclusively for computer science education passed both the U.S. House of Representatives (in 2022) and the U.S. Senate (in 2021). The program would authorize a new competitive grant operated by the U.S. Department of Education to improve the nation's global competitiveness by expanding access to computer science education and computational thinking skills for K-12 students, particularly for students facing systemic barriers.

Unfortunately, despite bipartisan support and the computer science program's inclusion in both chambers' versions and in the reconciled bill, the overall bills (USICA and COMPETES) did not pass. Congress can still act to address this pressing need and provide support for states and districts in expanding opportunities for students in 2022.

Just three states (Maryland, Mississippi, and South Carolina) have over **40% participation by young women in computer science**. In these states, computer science is a graduation requirement, or computer science is the primary way to fulfill a graduation requirement.

CEOs for CS

Computer science: Opportunity for every student

To the Governors and Education Leaders of the United States of America:

The undersigned leaders have joined forces to deliver a bipartisan message about opportunity and the American Dream. We call on you to update the K-12 curriculum in each state, for every student in every school to have the opportunity to learn computer science.

This has broad support among parents, students, teachers, and employers. Why? Because computer science provides an essential foundation — not only for careers in technology but for every career in today's world. Studies now show that students who learn computer science outperform in school, university, and beyond.

At a time when every industry is impacted by digital technology, our schools should teach every student how technology works, to learn to be creators, not just consumers. Instead, this basic skill is taught only to the lucky few, leaving most students behind, especially young women and students of color.

The United States leads the world in technology, yet only 5% of our high school students study computer science. How is this acceptable? We invented the personal computer, the internet, and the smartphone. It is our responsibility to prepare the next generation for the new American Dream.

A decade of progress has shown that change is possible: one hundred thousand teachers have proven that every school can teach computer science and that every child can start learning as early as elementary school. The largest school districts have expanded access to computer science, from New York to Los Angeles, Broward County to Las Vegas. All 50 states have taken action, showing that this idea has bipartisan support.

As states rethink education in light of COVID-19, it is time to make computer science a basic part of the "new normal." Here's why:

- During pandemic closures, America funded laptops for 90% of students to learn from home. As schools reopen, let's use those laptops to teach computer science.
- Remote work expands opportunity. Graduates no longer need to leave their state to pursue careers in tech. Even the smallest town can become a tech hub; the key is education.
- Nearly two-thirds of high-skilled immigration is for computer scientists, and every state is an importer of this strategic talent. The USA has 700,000 open computing jobs, but only 80,000 computer science graduates a year. We must educate American students as a matter of national competitiveness.
- Finally, global cyber attacks have put a new spotlight on cybersecurity, making computer science a national security imperative for governments and businesses alike.

We must all do our part. The undersigned commit our support by collectively creating employment opportunities for computer science students in every city in the USA, and in every sector, from manufacturing to banking, from agriculture to healthcare. Many of us offer internships to help these students find their career pathway. Many of us have funded efforts in CS education to support underserved communities. But there is only so much industry can do by ourselves.

Now is the time for action, and the stakes couldn't be higher. Together we urge you, for the sake of our students, our economy, and our country, to work together to update the K-12 curriculum, for every student in every school to have the opportunity to learn computer science.

More than **500 CEOs** have signed on in support

Julie Sweet, Chair & CEO, Accenture
Vicki L. Hanson, Executive Director & CEO, ACM
Max Levchin, Founder & CEO, Affirm
Brian Chesky, Co-Founder & CEO, Airbnb
Ben Minicucci, President & CEO, Alaska Airlines
Vivek Sankaran, CEO, Albertsons
Sundar Pichai, CEO, Alphabet
Andy Jassy, CEO, Amazon
Jeff Bezos, Founder & Executive Chair, Amazon
Robert Isom, CEO, American Airlines
Stephen J. Squeri, Chairman & CEO, American Express
Randi Weingarten, President, American Federation of Teachers
Tim Cook, CEO, Apple
John Stankey, CEO, AT&T
Bill Gates, Co-Chair, BIII & Melinda Gates Foundation
Steve Schwarzman, Chairman & CEO, Blackstone
Robin Vince, President & CEO-Elect, BNY Mellon
Chuck Robbins, Chairman & CEO, Cisco
Ken Griffin, Founder & CEO, Citadel
Hadi Partovi, CEO, Code.org
Brian Humphries, CEO, Cognizant
David Coleman, CEO, College Board
Jake Baskin, Executive Director, Computer Science Teachers Association
W. Craig Jelinek, President & CEO, Costco
Mark Cuban, Co-Founder, Costplusdrugs.com
Michael Dell, Founder, Chairman & CEO, Dell Technologies
Ed Bastian, CEO, Delta Airlines
Alix Guerrier, CEO, DonorsChoose
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Jeb Bush, Founder, President & Chairman, ExcelInEd
Peter Kern, Vice-Chairman & CEO, Expedia Group
Raj Subramaniam, President & CEO, FedEx Corporation
Revathi Advaithi, CEO, Flex
Mary Barra, Chair & CEO, General Motors
Dr. Tarika Barrett, CEO, Girls Who Code
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Jack E. Kosakowski, President & CEO, Junior Achievement USA
Rami Rahim, CEO, Juniper Networks
Sal Khan, Founder & CEO, Khan Academy
Henry Kravis, Co-Founder & Co-Executive Chairman, KKR
Sindy M. Benavides, CEO, League of United Latin American Citizens (LULAC)
Steve Ballmer, Chairman, Los Angeles Clippers
Sharmistha Dubey, Former CEO, Match Group
Mark Zuckerberg, Founder, Chairman & CEO, Meta
Sheryl Sandberg, COO, Meta
Satya Nadella, Chairman & CEO, Microsoft
Brad Smith, President & Vice Chair, Microsoft
Adena Friedman, President & CEO, Nasdaq Inc.
Becky Pringle, President, National Education Association
Favour Nerrise, Chairman, National Society of Black Engineers
John Donahoe, President & CEO, NIKE, Inc.
Erik Nordstrom, CEO, Nordstrom
Mark Hagerott, Chancellor, North Dakota University System
Sam Altman, CEO, OpenAI
Safra Catz, CEO, Oracle
David Dimmett, Interim President & CEO, Project Lead The Way
Hamid Moghadam, Co-Founder, CEO & Chairman, Prologis
Ryan Smith, Founder & Executive Chairman, Qualtrics
Marc Benioff, Co-Founder, Chairman & Co-CEO, Salesforce
Bret Taylor, Co-CEO, Salesforce
Eric Schmidt, Co-Founder, Schmidt Futures
Evan Spiegel, Co-Founder & CEO, Snap Inc.
Daniel Ek, Co-Founder & CEO, Spotify
Howard Schultz, CEO, Starbucks
Kevin Hourican, President & CEO, Sysco Corporation
Mike Sievert, President & CEO, T-Mobile
Brian Cornell, Chairman & CEO, Target
Elisa Villanueva Beard, CEO, Teach For America
Parag Agrawal, CEO, Twitter
Suzanne P. Clark, President & CEO, U.S. Chamber of Commerce
Dara Khosrowshahi, CEO, Uber Technology Inc.
Ted Carter, President, University of Nebraska System
Ana Mari Cauce, President, University of Washington
Carol B. Tomé, CEO, UPS
Robert Smith, Founder, Chairman & CEO, Vista Equity Partners
Rosalind Brewer, CEO, Walgreens Boots Alliance
Doug McMillon, President & CEO, Walmart
Charles W. Scharf, CEO & President, Wells Fargo
Aneel Bhusri, Co-Founder & Co-CEO, Workday
Michael Seibel, Managing Director, Y Combinator
Jim Lanzone, CEO, Yahoo
Susan Wojcicki, CEO, YouTube
Rich Barton, Co-Founder & CEO, Zillow
Eric Yuan, Founder & CEO, Zoom

See the full list of signatories at www.CEOsForCS.com. **Spread the word!**

K–8 Computer Science

States, districts, and advocates are increasingly developing capacity for K–8 computer science as part of full K–12 pathways, seeing elementary and middle school instruction as a vehicle for equity. Foundational courses in K–8 help all students develop confidence in computer science, better preparing them for high school courses. Efforts that only focus on high school computer science courses may not achieve increased or representative enrollment: underrepresented students who experience computer science early are more likely to enroll in subsequent computer science courses.[22] Additionally, elementary computer science is often integrated or taught to all students, leading to learning experiences that are inclusive of the overall student population.

When elementary students enter secondary school, it is important that they can continue to pursue computer science pathways. Underrepresented populations are disadvantaged if prior experience is conflated with natural aptitude. Boys are more likely to come to school with prior computer science experiences from outside of school[23] and more likely to be encouraged by a teacher or parent to take computer science.[24] Mathematics prerequisites are common for computer science, although research shows that they are not the best predictors of computer science success[25], and they can further disadvantage students who have historically been excluded from advanced mathematics.[26]

District-wide K–12 pathways provide clear progressions through elementary school and lead to secondary courses or experiences. Sustained efforts require coordination across grades and support from school and district leadership. The Strategic CSforALL Resource & Implementation Planning Tool (SCRIPT) guides groups of school district teams to consider a comprehensive and equitable approach to computer science through collaborative visioning, self-assessment, and goal setting.[27] State funding for local education agency planning grants can support districts in creating comprehensive district-level plans.

State-level policies have increasingly focused on K–8 computer science education, including:

- Prioritizing or dedicating funding to K-8;
- Requiring all K-8 schools to teach computer science;
- Creating K-8 course codes in computer science;
- Hiring a state employee to focus solely on K-8 computer science implementation;
- Requiring all preservice elementary teacher preparation programs to include computer science and computational thinking content; and
- Replacing K-12 teacher certifications with grade band-specific certifications.

Eight states (AL, AR, IN, MD, NH, NV, RI, SC) have **over 80% of their high schools teaching computer science.** All of them have adopted at least seven of the policies to make CS foundational.

[22] Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools
[23] Google & Gallup (2017), Encouraging students toward computer science learning.
[24] See the National Momentum: Access and Participation chapter of this report.
[25] Google & Gallup (2016), Moving forward: Closing the computer science learning gap: Girls.
[26] Torbey, R., Martin, N. D., Warner, J. R., & Fletcher, C. L. (2020, February). Algebra I Before High School as a Gatekeeper to Computer Science Participation. In Proceedings of the 51st ACM Technical Symposium on Computer Science Education (pp. 839-844). doi: 10.1145/3328778.3366877

[27] Prat, C.S., Madhyastha, T.M., Mottarella, M.J., & Kuo, C.H. (2020), Relating natural language aptitude to individual differences in learning programming languages.

A Compact to Expand K-12 Computer Science Education

With this compact, the undersigned commit to expand K–12 computer science education for students in their states and territories, which may include the following strategies:

Increasing the number of high schools offering computer science courses, which may be supported by:

- Requiring all high schools in the state or territory to offer at least one computer science course.
- Establishing rigorous K–12 computer science standards.
- Creating a state or territory plan for K–12 computer science.
- Implementing clear and flexible certification pathways for computer science teachers.
- Creating programs to provide computer science to preservice teachers.

Allocating state or territory funding to K–12 computer science education, which may be supported by:

- Establishing positions dedicated to computer science in state and local education agencies.
- Allocating funding for rigorous computer science teacher professional learning.

Creating pathways to postsecondary success in computing and related careers, which may be supported by:

- Allowing computer science to satisfy a core graduation requirement.
- Requiring a computer science credit for high school graduation.
- Allowing computer science to satisfy an admissions requirement at institutions of higher education.
- Developing sequenced high school course pathways that support industry needs through skills and recognized certifications.

Providing equitable access to computer science for all students, which may be supported by:

- Improving state data collection, reporting and analysis of student participation in computer science.
- Offering computer science in elementary and middle schools to build student interest and confidence before traditionally underserved populations begin to self-select out of the subject.

How Does the U.S. Compare to International CS Efforts?

Two recent reports have detailed the global momentum around computer science education and highlighted the common issues and challenges facing countries worldwide.

In late 2021, the Brookings Institution published a report titled "Building Skills for Life: How to expand and improve computer science education around the world," which analyzed global initiatives and described the lessons learned from these initiatives. Unsurprisingly, the challenges that governments face around the world are common and familiar to state education systems in the U.S. These challenges include "(1) providing educators and students with adequate access to devices and connectivity; (2) ensuring qualified teachers through teacher preparation and professional development; (3) fostering student engagement and interest in CS education; and (4) developing and using evidence on curriculum and core competencies, effective instructional methods, and assessment of CS skills."

In early 2022, the European Commission's Joint Research Centre (JRC) released ***Reviewing Computational Thinking In Compulsory Education***. The report provided a thorough overview and in-depth analysis of European countries' computer science efforts, including policies, curriculum, assessment, and professional development. Of the 29 European countries included in the study, 25 countries have introduced basic computer science concepts in their statutory curriculum, with 17 countries making it compulsory in both primary and lower secondary schools. Most of these changes occurred between 2016 and 2021. Following the recommendations in this report, the European Commission is expected to make key policy recommendations by the end of 2022.

National Momentum: **Computer Science as a Graduation Requirement**

This chapter includes a discussion of computer science as a requirement for graduation, its momentum, and promising results.

Time after time, we hear inspiring stories from students about the one teacher who encouraged them to learn computer science. Perhaps it was a teacher who thought they would be good at it or incorporated computer science into their technology or math class. Or maybe it was that one principal or parent with a background in computer science who worked on adding it to the school's curriculum.

We commend these leaders for ensuring students have opportunities they may not otherwise have.

But access to computer science should not be a lottery for the few lucky students who happened to be in the right zip code, district, school, or classroom.

Computer science is for everyone. Every student is capable of learning and leading in computer science. If we believe that it is a foundational subject that every student would benefit from learning, then it has become increasingly clear that we cannot leave those opportunities to chance.

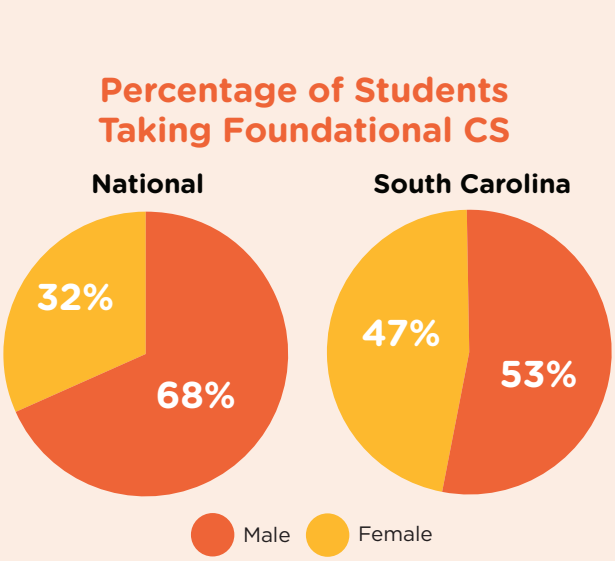
Every state permits computer science to count toward graduation requirements, but until 2018, no state required students to take a computer science course. That year, when South Carolina adapted its existing technology requirement to be a computer science requirement.

The 2020–21 school year was the first year the requirement was in place without any option of waivers, and the results have been stark. More young women took a computer science course this year in South Carolina than in Alabama, Florida, Georgia, and Tennessee **combined.**

"I never would have taken the Computer Science class if I didn't have to, but now I really like coding and problem solving.

I was the first student ever at my school to finish all of the python lessons. I like the challenge."

ADDISON MCCUNE,
7TH GRADE STUDENT (NEVADA)



Seeing this data, it is not surprising that since 2018, four other states have joined South Carolina in requiring computer science as a prerequisite for graduation. Arkansas, Nebraska, Nevada, and Tennessee have all taken this significant step. Kansas, North Dakota, and Rhode Island have advanced or considered legislation to do the same.

The momentum and outcomes for a computer science graduation requirement are encouraging so far. Below are major considerations for this state policy:

Ensure Equitable Outcomes

A graduation requirement is not to be taken lightly. States should allow a significant runway (5–6 years at minimum) to ensure schools are prepared to offer high-quality courses to students. That begins with the nine policies toward making computer science fundamental, which provide a foundation for states to develop capacity and which correlate with higher levels of CS course implementation. States should also ensure equity by monitoring and reporting on course implementation, demographics, and adoption each year prior to the requirement taking effect, as well as tracking graduation rates for all student demographics.

An analysis of South Carolina's graduation rates shows that they have increased for every racial and ethnic subgroup tracked by the state since the computer science requirement went into effect. State monitoring and reporting on these types of data must inform implementation.

State context is also crucially important—how and where states add computer science into graduation credits will vary. States should have a comprehensive understanding of the current landscape of computer

science education, taking into account the number of qualified teachers, access to computers, knowledge of student demographics, appropriate curriculum, and relevant educational policies. The ECEP Alliance Landscape Toolkit serves as a guide to build a landscape report. Arkansas allows a flexible credit option, in which the required course may fulfill a number of existing course requirements. Both Arkansas and Nevada allow students to take the course in middle school to meet their requirements.

Engage Students, Parents, and Schools

It is not sufficient to put in place a policy for a graduation requirement. The hard work begins once the graduation requirement is in effect. As a result, states, districts, and schools should ensure student experiences in computer science are positive and give every student—regardless of demographics, background, or previous experience in CS—the chance to be successful. Research shows that when students have opportunities to learn computer science, their attitudes toward it become more positive.[28] That applies across demographics such as race, socioeconomic status, disability, gender, and ethnicity. Further, supports such as teacher training and parent outreach should be a part of any state plan to implement a graduation requirement.

> "To require a computer science class **is a great investment in the future."**
>
> ARKANSAS GOVERNOR ASA HUTCHINSON (R)

Computer science is already widely understood to be a "must have" among district personnel. The vast majority of teachers (66%), principals (73%), and superintendents (75%) say that offering computer science is just as or more important as other required subjects such as math, science, history, and English.[29] But districts, schools, and teachers must have the support needed to implement the courses.

[28]Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools.

[29]Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools.

"I am thrilled that Nevada is continuing to be a national leader in computer science education. Our job as educators is to ensure our students are well-prepared for whatever is next. **Every student learning computer science is a foundational piece of what we've done to ensure their success."**

NEVADA SUPERINTENDENT OF PUBLIC INSTRUCTION JHONE EBERT

Clarify Intent

Computer science as a graduation requirement is meant to ensure all students—regardless of gender, race or ethnicity, or school—gain the skills and knowledge they need as students, as citizens, and in their careers.

Several studies have shown that computer science correlates with stronger student performance in problem-solving as well as reading, math, and science test scores. Computer science is not only crucial and foundational to student success—it increases student success in other areas as well. Students report liking computer science "a lot" more than any other subject area beside the arts.[30]

Computer science is necessary, supports other learning objectives, and engages students in their academics—fulfilling th purpose of a graduation requirement.

For states that have already adopted computer science as a graduation requirement, the policy is not the end. Rather, it is a beginning for a minimal expectation of what public education provides to our students. We—as advocates, stakeholders, and decision-makers—must continue to monitor and support effective implementation and equitable outcomes for students and schools.

[30]Code.org (2020), CS helps students outperform in school, college, and workplace.

National Momentum: **Access and Participation**

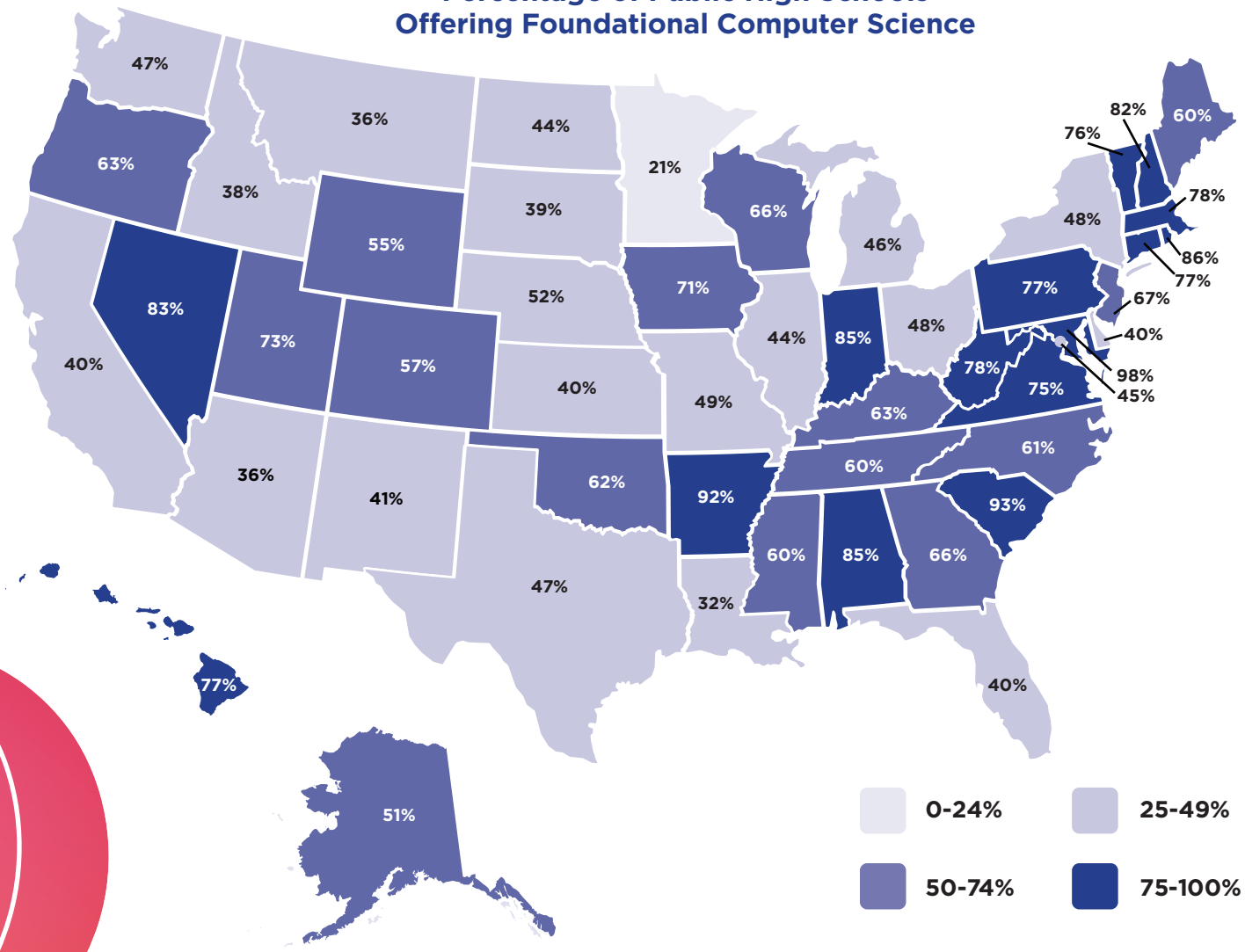
This section provides nationwide data on student access to and participation in foundational computer science courses, including the updated K–12 Computer Science Access Report.

Data described in this section includes:

- The percentage of public high schools offering foundational computer science courses overall and by community type/geography, free and reduced-price meals, and student race/ethnicity;
- Participation in foundational computer science courses, disaggregated by gender, race/ethnicity, English language learners, students with disabilities[31], and economically disadvantaged students[32]; and
- AP computer science access and participation, disaggregated by gender and race/ethnicity.
- Detailed methodology for data collection, including a description of each data source, is in Appendix 2. Full data tables are in Appendix 3.

[31] Defined as students who receive services or have IEPs under the Individuals with Disabilities Education Act (IDEA) or Section 504 of the Rehabilitation Act
[32] Defined as students who are eligible for free and reduced-price meals under the National School Lunch Program

Percentage of Public High Schools Offering Foundational Computer Science



53%

of schools offer computer science nationally

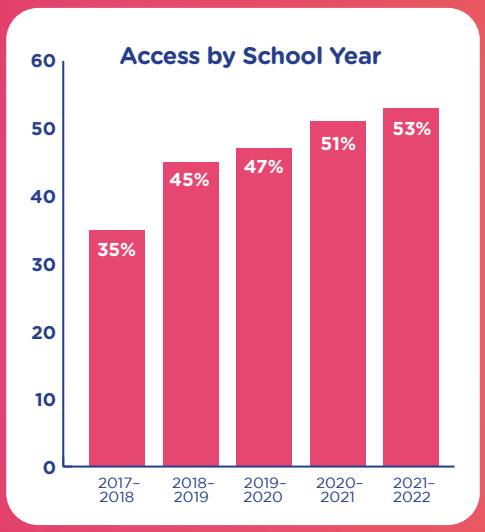
K-12 CS Access Report

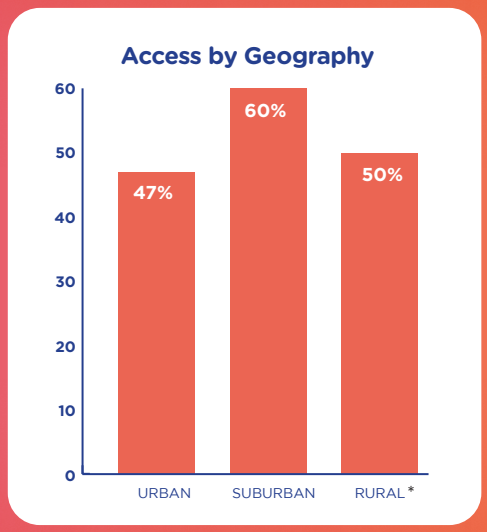
The K-12 Computer Science Access Report is a collaborative partnership to identify where foundational computer science is offered each year on a school-by-school basis. Based on data from 26,160 public high schools in the U.S., **53% of public high schools offer at least one foundational computer science course.**

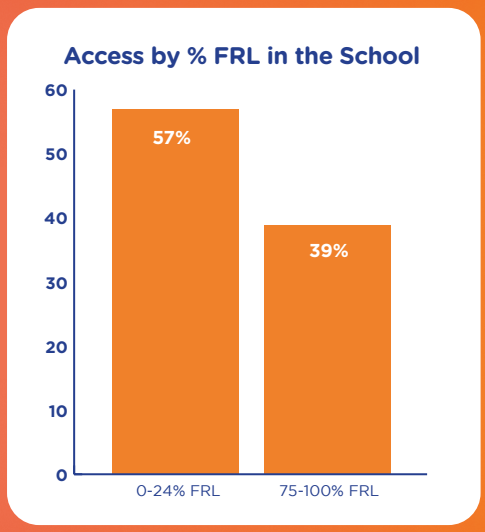
Definition of a Foundational Computer Science Course

Although many schools offer their students some exposure to computer science in a limited capacity, such as an Hour of Code, this report focuses on schools that provide instruction in foundational computer science in a course during the school day. In addition to aligning with the definition of computer science, a course that teaches foundational computer science includes a minimum amount of time applying learned concepts through programming (at least 20 hours of programming/coding for grades 9-12). Although computer science is broader than programming, some direct programming experience is integral to learning the fundamental concepts. It is also used as a defining characteristic to differentiate foundational computer science courses from general technology courses or those that address other elements of computing.

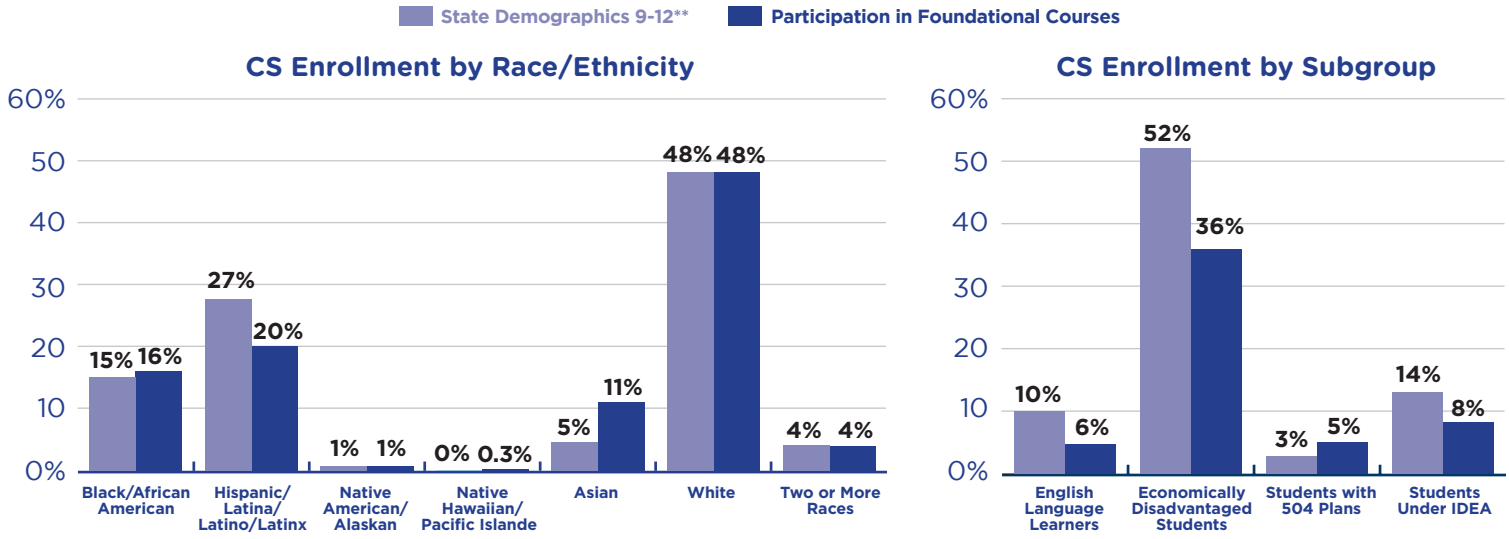
76% of U.S. high school students attend a school that offers a foundational computer science course, but across 36 states with enrollment data, only 5.6% of students are enrolled in a foundational computer science course (up from 4.7% of students enrolled in 2021). Across 36 states, 32% of students enrolled in computer science courses are female.







Participation in Foundational High School Computer Science Courses by Demographic

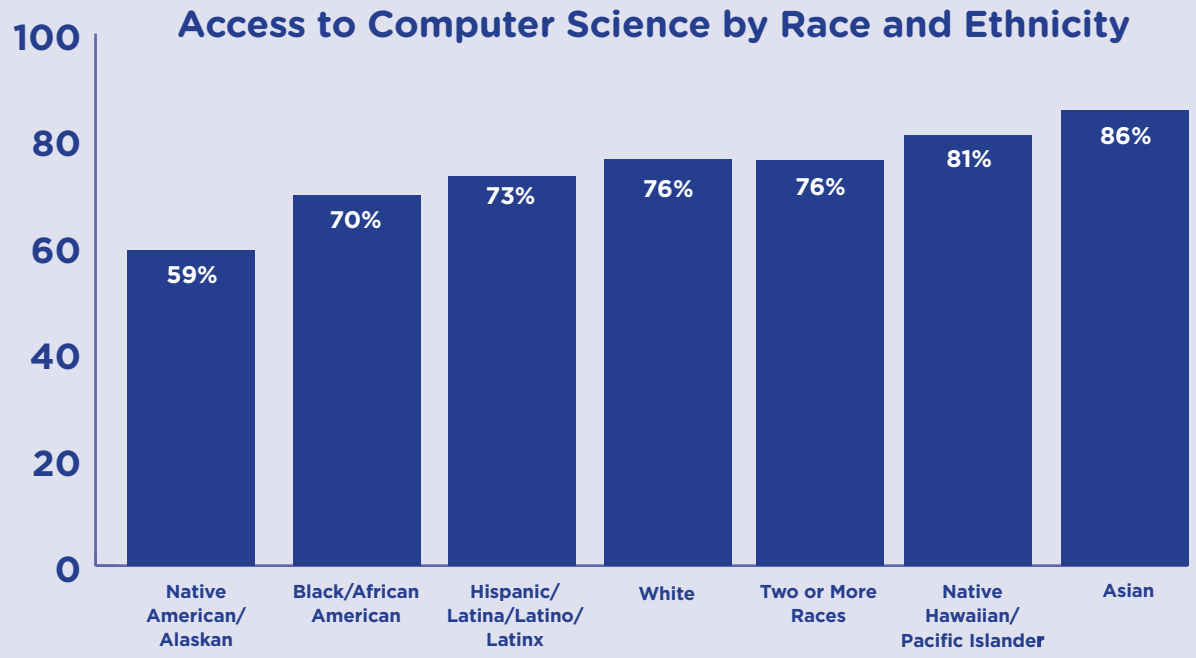


*In this report, town and rural school designations from NCES Education Demographic and Geographic Estimates are combined as rural schools

** Enrollment by race/ethnicity: Grades 9–12 population across 35 states. Enrollment by subgroup: National K–12 student population

Disparities in Access and Participation

Generally, students from racial and ethnic groups that have been historically excluded from computer science continue to be less likely to attend a school that offers it. These groups include Black/African American students, Hispanic/Latina/Latino/Latinx students, and Native American/Alaskan students. In Alabama, Delaware, Indiana, Kentucky, South Carolina, Tennessee, Utah, and Wisconsin, students of all racial and ethnic groups are similarly likely to attend a school that offers computer science, and no participation disparities exist for students from underrepresented racial and ethnic groups. State and national organizations continue to approach these disparities through policy advocacy, teacher professional development, and research. Greater effort is under way in data dissemination and utilization, thus allowing states to build sustainable strategies to address the needs of all students.



K-8 Computer Science Access and Participation

In 2021, the Access Report included preliminary data on K–8 computer science access and participation. This data is preliminary because the majority of states do not have K–8 course codes for computer science, and some have course codes but low school reporting rates. Further complicating data collection, computer science is often integrated into other subjects in K–8 rather than being taught as a standalone course. Teams in Maryland, Nevada, Oklahoma, and South Carolina are leading a national effort working to create School Courses for the Exchange of Data (SCED) codes for K-5 CS courses. Other data collection efforts include district-level strategies to add computer science to school report cards, an early attempt at standardizing data collection.

States that lack computer science course codes have collected data on K–8 computer science implementation in other ways. Some states do a landscape report that may include survey data providing a snapshot in time. Other states issue an annual survey or call every school in the state to learn about access to K–8 computer science instruction each year. While the majority of states are still working to improve their K-8 data reporting, this preliminary data did show some positive trends.

K-8 Access and Participation Data

In 2021, nineteen states[33] provided data on computer science offerings in grades 6-8, and nine of those states provided data on computer science in grades K-5. Combining this course code data with survey and provider data gives insight into access to computer science in grades K-8.

Across 17 states, 3.9% of middle school students enrolled in foundational computer science. Of these students, 44% are young women, 9% are English language learners, 2.4% have 504 plans, 12% receive special education services under IDEA, and 46% are economically disadvantaged. Hispanic/Latina/Latino/Latinx and Native American/Alaskan students are slightly underrepresented in middle school computer science compared to their state population.

Across eight states, 7.3% of elementary school students enrolled in foundational computer science. Among these students, 49% are girls, 14% are English language learners, 1.1% have 504 plans, 15% receive special education services under IDEA, and 50% are economically disadvantaged. Generally, elementary computer science students are representative of the overall student population in each demographic, including gender and race/ethnicity.

This data indicates that fewer disparities exist in computer science participation for students in K–8 than in high school and beyond. For example, female students make up 49% of the elementary students enrolled in computer science, 44% of the middle school students, and only 32% of the high school students enrolled in foundational computer science. Similarly, students receiving free and reduced lunch make up 50% of the elementary students enrolled in foundational computer science, 46% of the middle school students, and only 36% of the high school students. Longitudinal data is needed to fully understand whether the representation seen in current K-8 grades will continue as these students enter high school.

> **"Everyone deserves the opportunity to learn a skill that will give them the power to change their own life** and lives of those around them in positive and impactful ways."
>
> LAUREN BERRIOS, TEACHER

[33]Includes data from 41% of schools with K–8 grades across AL, DE, FL, GA, HI, IN, KY, MA, MD, NC, NE, NV, OK, SC, TN, UT, VA, WA, WI

AP Computer Science Access and Participation

> **"Every student should have the opportunity to learn the basics in computer science."**
>
> VANESSA JONES, TEACHER

The data in this section describes the College Board AP exam participation across two courses: AP Computer Science A and AP Computer Science Principles. Each is equivalent to an introductory semester college course.

Over the past several years, the number of students taking AP computer science exams has skyrocketed (81% growth since 2017). The number of female students and students from marginalized racial and ethnic groups underrepresented in computer science has increased every year since 2016. The College Board recognized 1,102 schools for reaching gender parity in at least one of the computer science exams in the 2020–21 school year.

AP Computer Science Principles, launched in 2016, covers the big ideas of computer science and computational thinking, including algorithms and programming. This course, designed with support from the NSF, has the explicit purpose of engaging students from populations traditionally underrepresented in computer science. Black/African American students who take the course are three times more likely to take AP Computer Science A. All students who take AP Computer Science Principles are more likely to major in computer science in college, with Black/African American, Hispanic/Latina/Latino/Latinx, female, and first-generation students even more likely.[34]

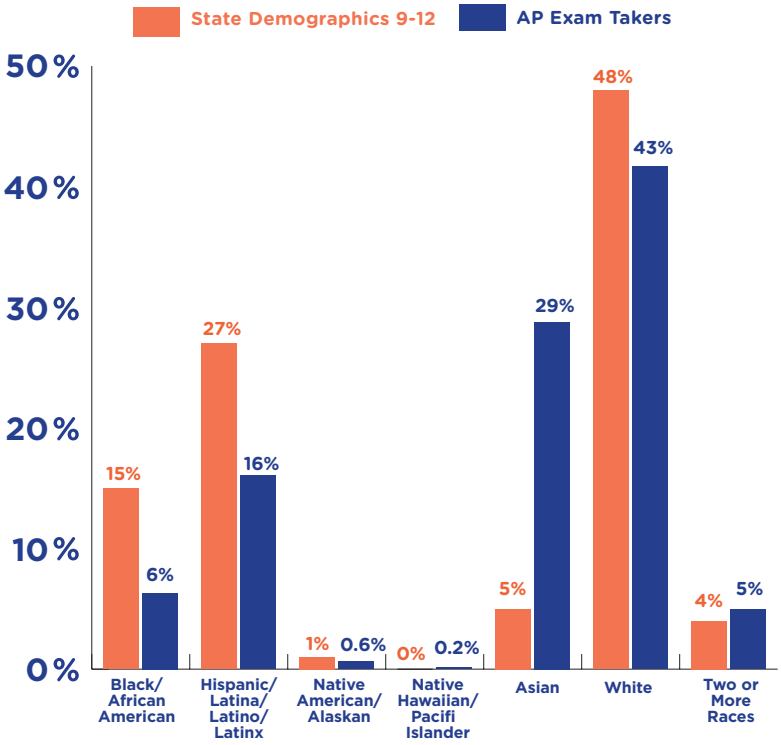
AP Computer Science A focuses on problem-solving and object-oriented programming using the Java programming language. Code.org worked with several state partners to develop a new curriculum for the course with an intentional focus on equity, acknowledging the diversity of students' cultures and experiences to engage every student. After a pilot program ran in the 2021–22 school year, the new AP Computer Science A course, curriculum, and corresponding professional development will be available for teachers and schools anywhere to access.

The first graph below compares the percentage of students from each race or ethnicity within the overall student population to the population of students taking AP computer science exams. Although the population of exam-takers is becoming more representative, particularly in AP Computer Science Principles, students from historically excluded racial and ethnic groups are underrepresented in taking AP computer science exams, even when they attend a school that offers it.

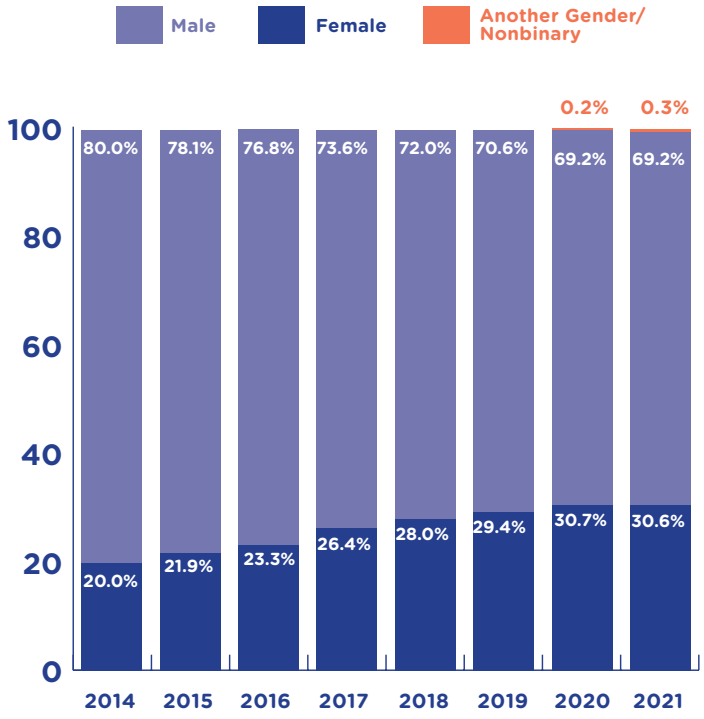
In 2020, the College Board collected non-binary gender data for the first time. Participation data by gender and over time is shown in the second graph to the right.

[34] The College Board (2020), New data: AP Computer Science Principles course bringing more diverse set of students into computer science pipeline.

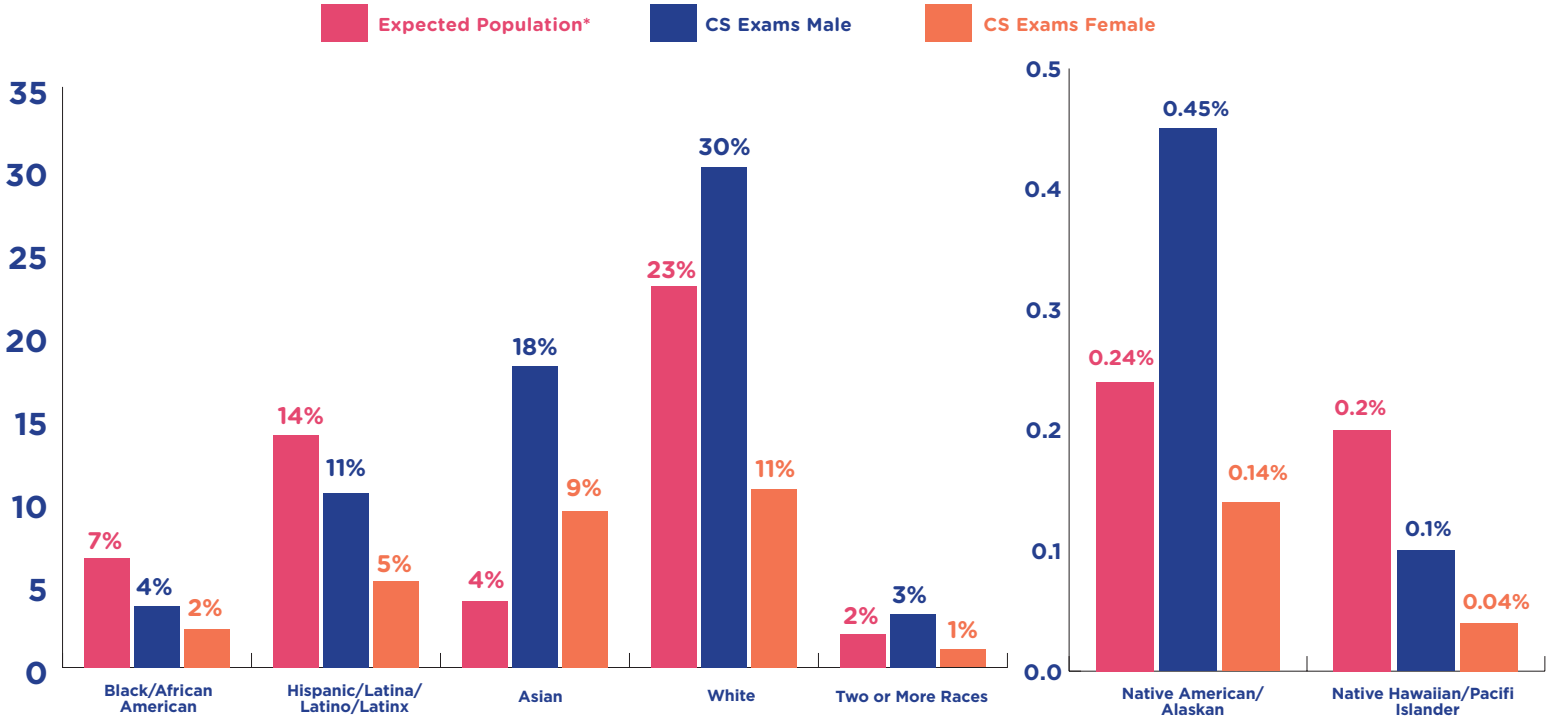
AP Computer Science Access and Participation by Race and Ethnicity (2021)



AP Computer Science Exam Participation by Gender Over Time



Population of Students in Schools Offering AP CS by Gender and Race/Ethnicity (2021)



*Expected Population per gender is based on the overall enrollment by race/ethnicity at schools that offer AP CS.

Computer Science Education Policy

This section presents the most reliable data currently available on the nine state policies developed by members of the Code.org Advocacy Coalition for expanding computer science education.

Policy Is Crucial

The ***2022 State of Computer Science Education: Understanding Our National Imperative*** report makes one thing clear: policy matters in addressing disparities in who has (and does not have) access to computer science. States that have more policies enacted offer computer science in more schools.

While students, families, teachers, and schools can—and do—play roles in expanding opportunities in computer science, state policy must ensure equitable access across all schools, define and provide clarity, and develop infrastructure to provide those stakeholders with the tools they will need.

Momentum and Trends in Policy

Very few, if any, areas of K–12 education have seen the momentum and growth that computer science has in the past five years. Thanks to the tireless work of teachers, advocates, stakeholders, and policymakers, computer science education policy across the U.S. looks remarkably different than it did just a few years ago.

In 2017, the first national report on the state of computer science education, "State-Level Policies Supporting Equitable K–12 Computer Science Education"[35], was published. At the time of that report, only seven states had adopted K-12 computer science education standards. Now, in 2022, 43 states have standards or are in the process of developing them, while 27 states require their schools to teach computer science.

The nine policies that the Code.org Advocacy Coalition developed and recommended to make computer science foundational (see the nine policies on page 9 of this report) have accelerated the growth of availability and access across schools nationwide.

Among these policies, three have had outsized effects on access to computer science courses: **funding, state plans,** and a **requirement for schools to offer courses.**

Policy	States in 2017	States in 2022
State-level funding for computer science	**9**	**31**
State plan for K–12 computer science	**2**	**27**
All high schools required to provide computer science	**4**	**27**

[35]BNY Mellon (2017), State of the States Landscape Report: State-Level Policies Supporting Equitable K–12 Computer Science Education.

Funding

Funding computer science education continues to be one of the most impactful policy levers states can activate to expand course offerings. Since 2016, states have allocated more than $330M to computer science education, and for good reason. Among the 35 states that have allocated funding, on average, 63% of high schools are offering a computer science course, which is 10 percentage points higher than the average of states who have not funded computer science efforts.

When funding these efforts, the most effective investments are to train teachers to teach computer science. Teachers are crucial for implementing and sustaining new courses, and funding provides the resources needed to ensure those teachers have the skills and knowledge needed to bring computer science to their classrooms. Currently, the most effective way to scale up the number of schools offering computer science is to fund professional development for teachers already in schools and classrooms. Ultimately, states should ensure that all preservice teachers have some background in computer science, a practice that states like Arkansas, Indiana, and Nevada have implemented.

Eighteen states allocated over $50M in funding in 2022. Below are some of these examples.

Kansas

For the first time, Kansas passed $1 million in funding for CS efforts through the state's annual budget process. The funding is allocated to the computer science education advancement grant, which is used "to provide grants to high-quality professional learning providers to develop and implement teacher professional development programs" to meet Kansas' new requirement that all schools provide computer science courses (more on that requirement is below).

California

The state allocated $15 million for competitive grants for professional learning to K–12 teachers to provide high-quality instruction in computer science. The state also appropriated $1.5M for a Computer Science Subject Matter Project within the University of California system. The grant supports K-12 practitioners with resources and best practices. Additionally, recurring funding has been available since 2021 for a full-time computer science coordinator in the department of education.

California has also added computer science to its list of allowable uses for existing grant programs, such as grants for professional development and family engagement, that are aligned with computer science standards.

Idaho

Idaho was one of the first states in the country to allocate funding for computer science. Every year since 2016, its budget has included crucial dollars to train teachers. In 2022, $500,000 was allocated to the Idaho STEM Action Center, an entity of the state government that awards computer science grants to schools and educators to expand offerings.

> "Computer science is a literacy because it is what **runs much of the world as we know it.**"
>
> GINA FUGATE, TEACHER

State Plan

State plans are instrumental in aligning efforts, resources, and outcomes as states seek to expand access and participation in computer science education. State plans for computer science education should:

- Be specifically focused on computer science;
- Include a timeline, goals, and strategies for achieving the goals; and
- Be publicly available.

States that have created such plans have seen extraordinary success in delivering on the strategies and goals of their plans. States that have adopted plans on average have 68% of high schools offering computer science, compared with just 51% in states without a plan. A plan framework is available for states that want to develop their own plan or update a current plan.

Louisiana

Senate Bill 190 established a computer science education advisory commission tasked with creating recommendations for the state board of education. Those recommendations include funding computer science professional development, graduation requirements, and other strategies to expand access. The state's action plan is to provide "a comprehensive, integrated plan for providing computer science education in Louisiana public schools."

Kentucky

The Kentucky Department of Education released its comprehensive plan for computer science education in the Commonwealth. In addition to strategies and resources for expanding access, Kentucky's plan includes a set of "core beliefs," including that "every student deserves equitable access to high-quality computer science education."

Importantly, the plan also addresses the state requirement, passed in 2020, that the department provide an annual report on participation in computer science by students, a crucial component of measuring equitable outcomes in computer science.

Require Schools to Offer Computer Science

Although the number of schools offering foundational computer science continues to increase, state leaders have found it important to enact policy that ensures all students—regardless of their background, identity, or location—have access. To that end, a majority of U.S. states have now required schools to provide computer science courses. Of the ten states with the highest percentage of schools offering a computer science course, nine have such a requirement.

This year, Kansas and Missouri joined 25 other states in requiring their schools to provide computer science courses by the 2023-24 school year. Each state provided some flexibility in course offerings. For Kansas, districts unable to meet the 2023-24 deadline must submit a plan to the State Board of Education to describe how they will offer the course and in what year they will be able to offer it. In Missouri, schools may offer the course through a virtual or distance option.

In the past year, this policy has seen further maturation, as Nebraska and Tennessee joined Arkansas, Nevada, and South Carolina as states that require students to take a computer science course for graduation. More information on this policy can be found in this report in the chapter "National Momentum: Computer Science as a Graduation Requirement," on page 19.

Nebraska

LB 1112 in Nebraska requires each school district to include computer science and technology education in the instructional program of its elementary and middle schools. Beginning in the 2026–27 school year, the law also requires each student attending a public school to complete at least one high school course in computer science and technology prior to graduation.

Tennessee

House Bill 2153 requires that by the 2024–25 school year, high school students receive one full school year of computer science education to satisfy graduation requirements. Tennessee further required the incorporation of computer science into its early grades, which research indicates is crucial for student attitudes and applications of computer science.[36] Middle school students are to receive one course in computer science, and elementary school students will receive grade-appropriate computer science education.

[36]Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools.


8

State Summaries

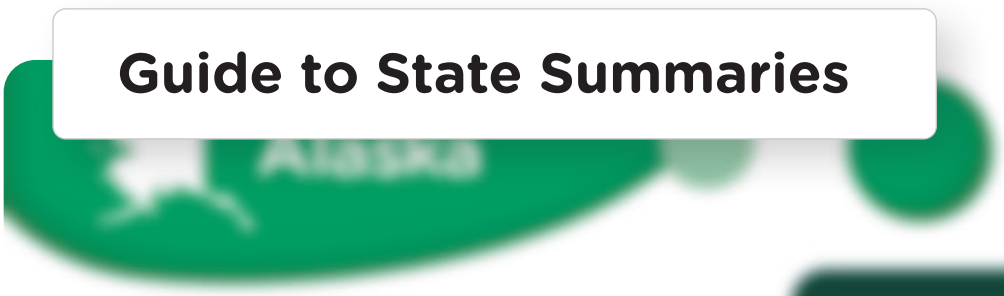
This section provides information for each state in the nation, including:

- The state's status on each of the nine policies;
- Updated computer science education policies in the state;
- Data on high schools that offer foundational computer science; and
- Data on student participation in high school computer science courses by demographic.

Further Information

- Up-to-date policy information can be viewed at bit.ly/9policies.
- Refer to governorsforcs.org for more information about the Governors' Partnership for K–12 Computer Science.
- See ecepalliance.org for more information about connecting with a state team and to learn more about how your state can increase the number and diversity of K–12 students in computing and computing-related degrees.
- Refer to csteachers.org/chapters to find your CSTA chapter.
- Data sources are described in more detail on the following page and in Appendix 2. All data is included in the tables in Appendix 3.

Guide to State Summaries



Policy yes/no data box
These boxes indicate whether the state has each policy in place. See Appendix 1 for the rubric used to determine each state's status.

This section describes overall student trends in access and participation for the state.

Access by School Year shows the percentage of public (including public charter) high schools in the state offering foundational computer science for any years in which a full data set was available, as collected by the Access Report. See Appendix 2 for more details about the data sources and Appendix 3 for this data in a table.

Access by Geography refers to the percentage of high schools in each community type that offer foundational computer science for the most recent school year available. In this report, town and rural school locations are counted together as "rural."

Access by % FRL in the school refers to the percentage of high schools in each category (grouped by the percentage of students in the school eligible for the free and reduced-price meals program) that offer foundational computer science for the most recent school year available.

Participation in Foundational Computer Science: For states that provide participation data in all foundational high school computer science courses, the graphs display enrollment in these courses by student demographic. The percentage of students enrolled in computer science courses who are characterized as English language learners, students with disabilities, and economically disadvantaged are compared to the statewide percentage of K–12 students with that characteristic. Enrollment by race/ethnicity is compared to the statewide 9–12 student population.

AP Computer Science: For states that do not provide participation data in all foundational computer science courses, the graphs display data from the College Board's AP program. This combines the data on exams taken in AP Computer Science Principles and AP Computer Science A. Participation data includes students attending public and private schools.

Alabama

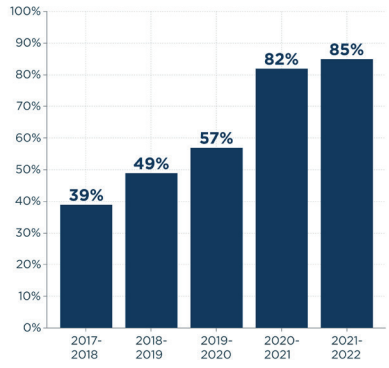
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

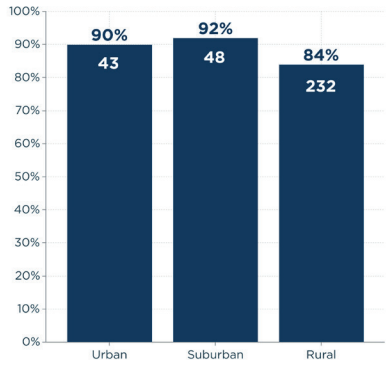
86.7% of AL high school students attend a school that offers foundational computer science, but only **5.5%** of students are **enrolled in a computer science course. 39.2% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

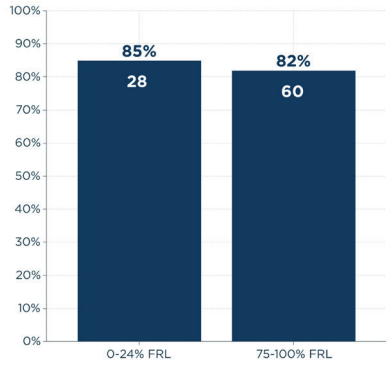
Access by School Year



Access by Geography



Access by % FRL in the School

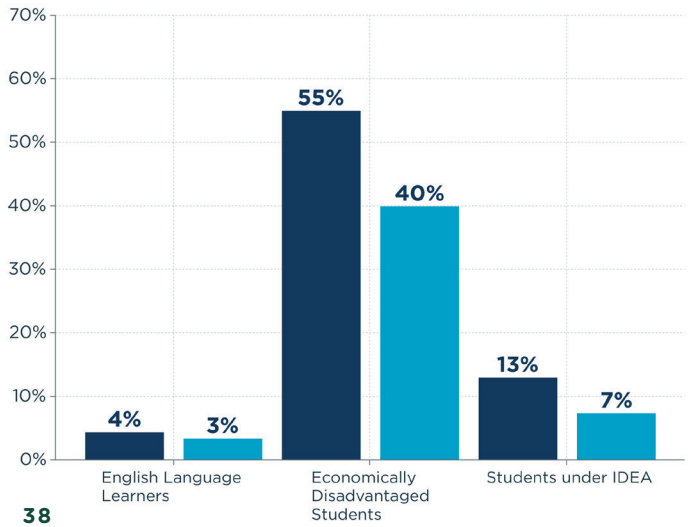


Data provided primarily by the Department of Education, based on 381 schools with high school grades. Some students may be represented in multiple race/ethnicity columns, as the state reports race and ethnicity separately.

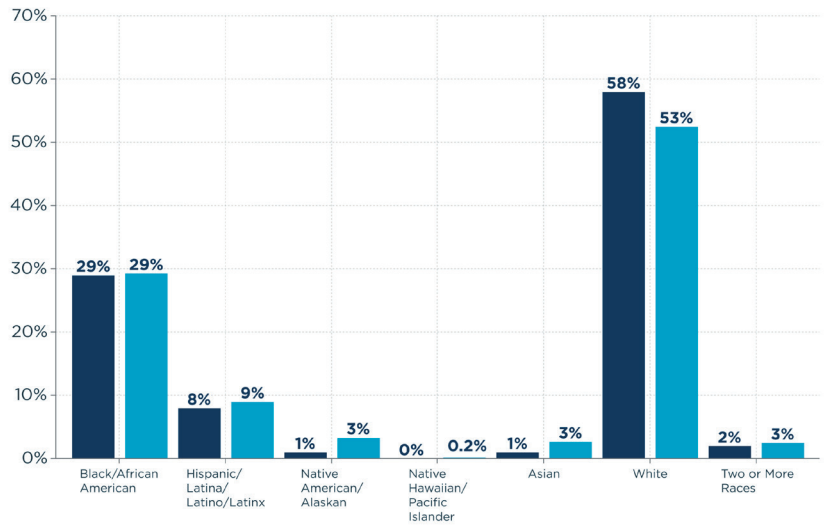
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Alaska

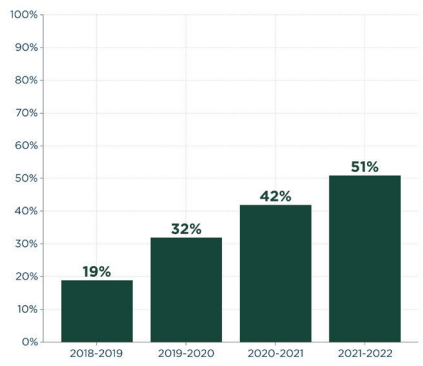
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	NO
Certification	**Preservice**	**State CS Position**
NO	NO	IN PROGRESS
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	NO

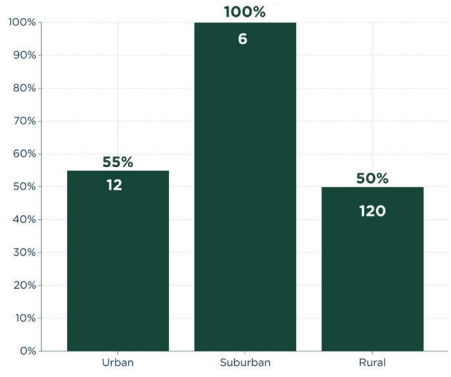
71.26% of AK high school students attend a school that offers foundational computer science. Of the 100 AP CS exams taken in Alaska in school year 2020-21, **20% were female.** Course enrollment data for all foundational computer science courses is not available from Alaska. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

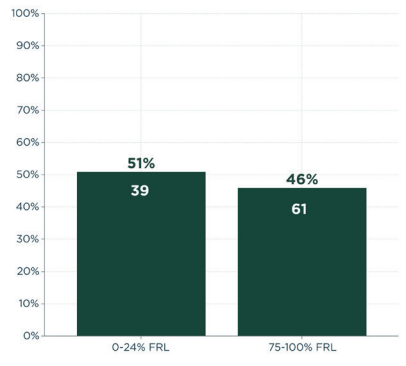
Access by School Year



Access by Geography



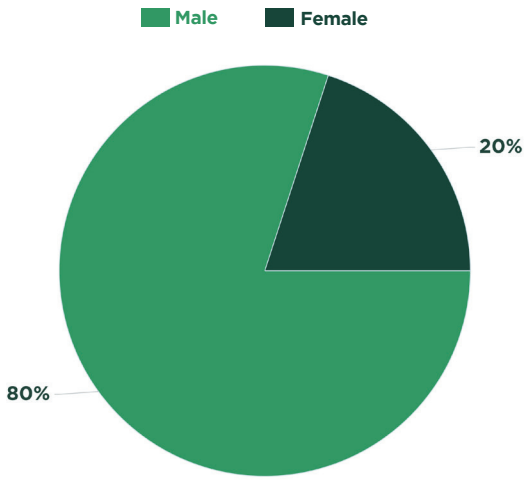
Access by % FRL in the School



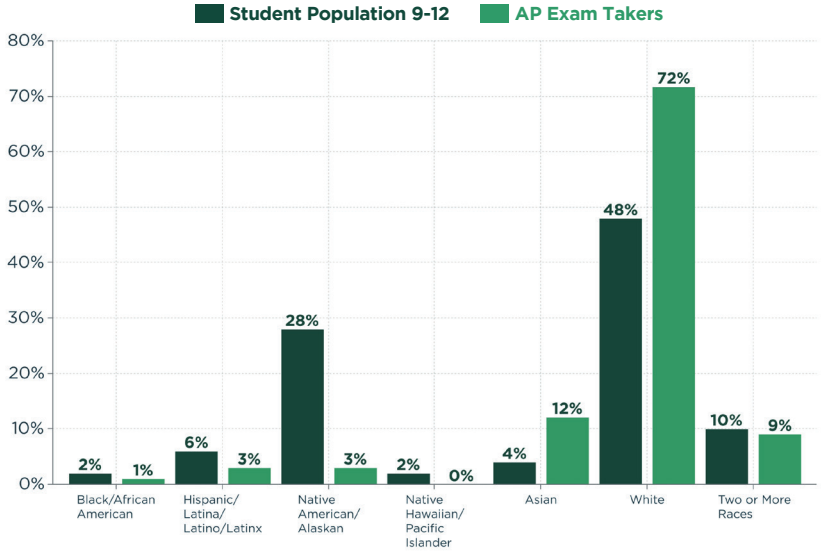
Data provided primarily by school catalogs, based on 273 schools with high school grades. The state reports students who are low-income rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Arizona

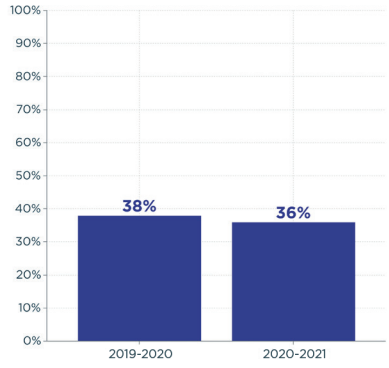
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	NO

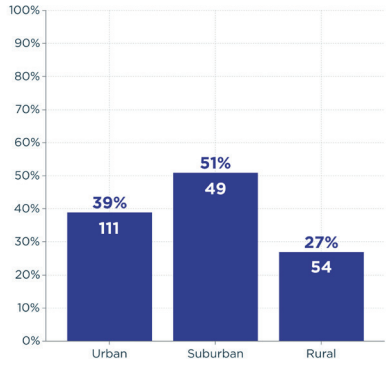
65.1% of AZ high school students attend a school that offers foundational computer science, but only **2.0%** of students are **enrolled in a computer science course. 21.3% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

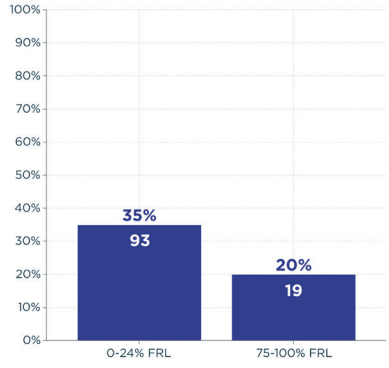
Access by School Year



Access by Geography



Access by % FRL in the School

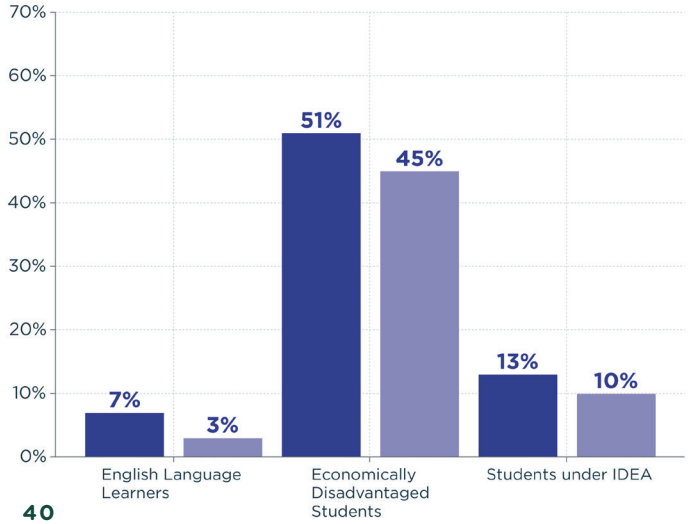


Data provided primarily by the Department of Education, based on 602 schools with high school grades. Participation data was masked at low counts.

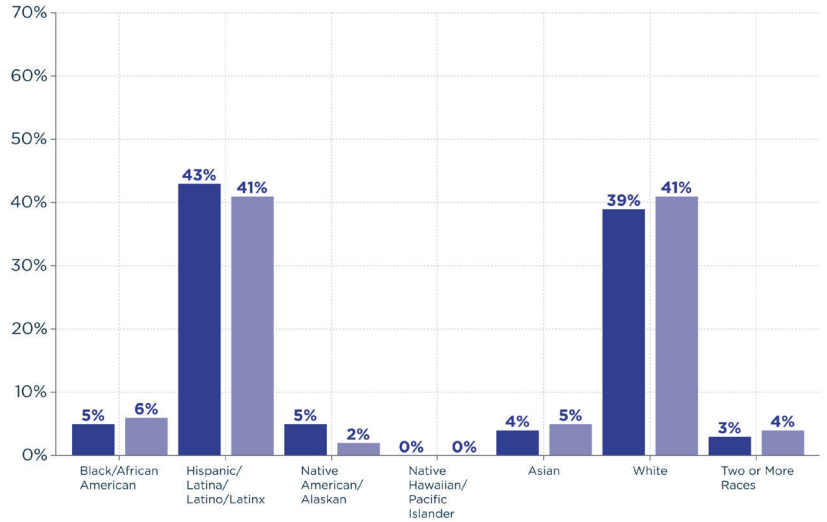
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Arkansas

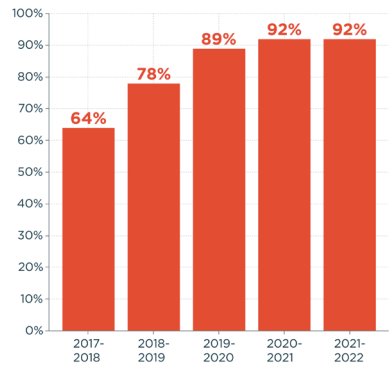
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	GRAD REQUIREMENT	YES

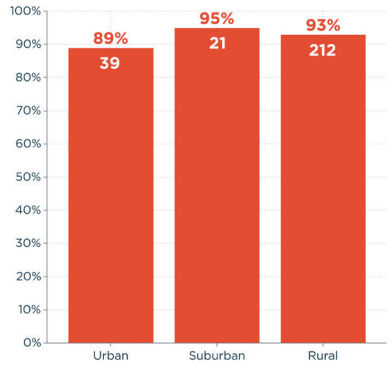
90.3% of AR high school students attend a school that offers foundational computer science, but only **7.5%** of students are **enrolled in a computer science course.** **29.7% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

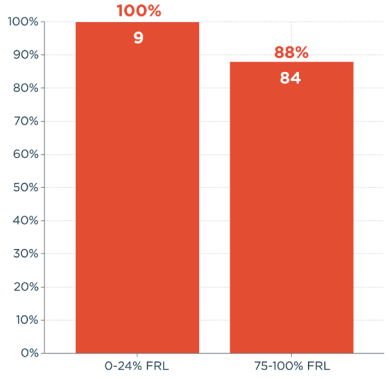
Access by School Year



Access by Geography



Access by % FRL in the School

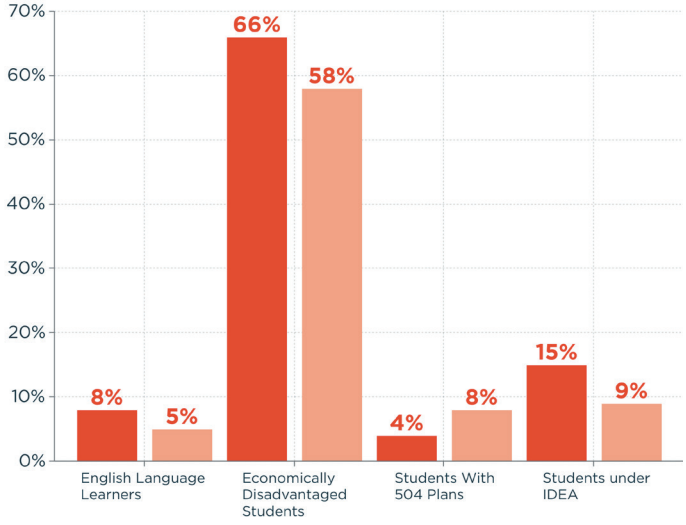


Data provided primarily by the Department of Education, based on 305 schools with high school grades. Participation data was masked at low counts.

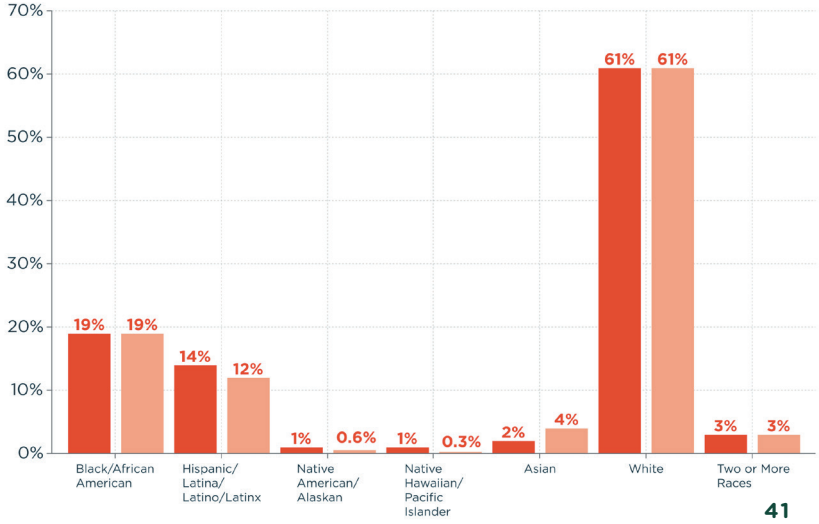
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



California

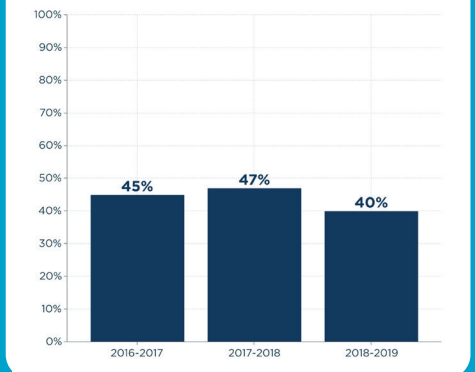
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	YES

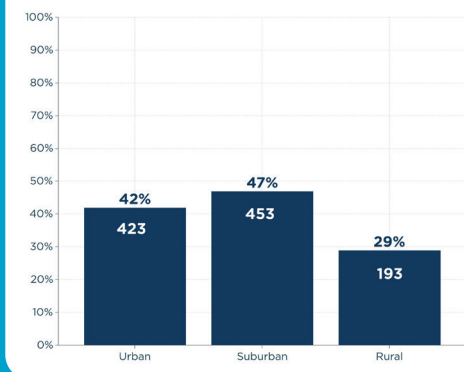
75.1% of CA high school students attend a school that offers foundational computer science. Of the 31,189 AP CS exams taken in California in school year 2020-21, **31% were female.** Course enrollment data for all foundational computer science courses is not available from California. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

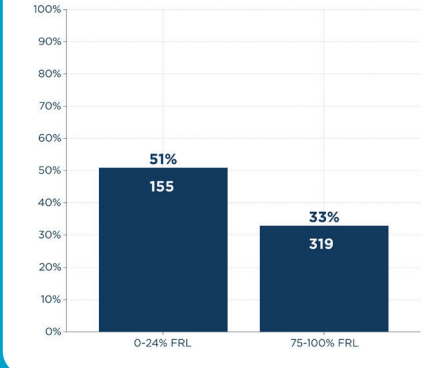
Access by School Year



Access by Geography



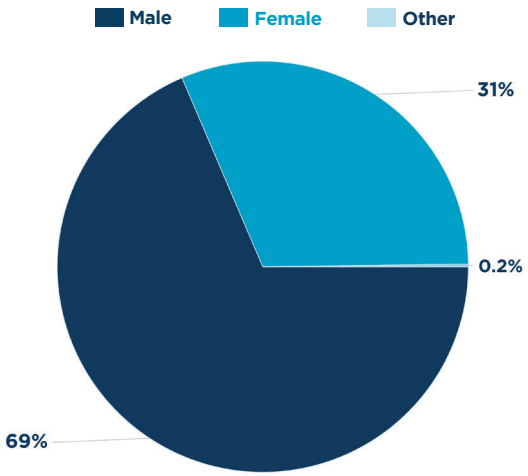
Access by % FRL in the School



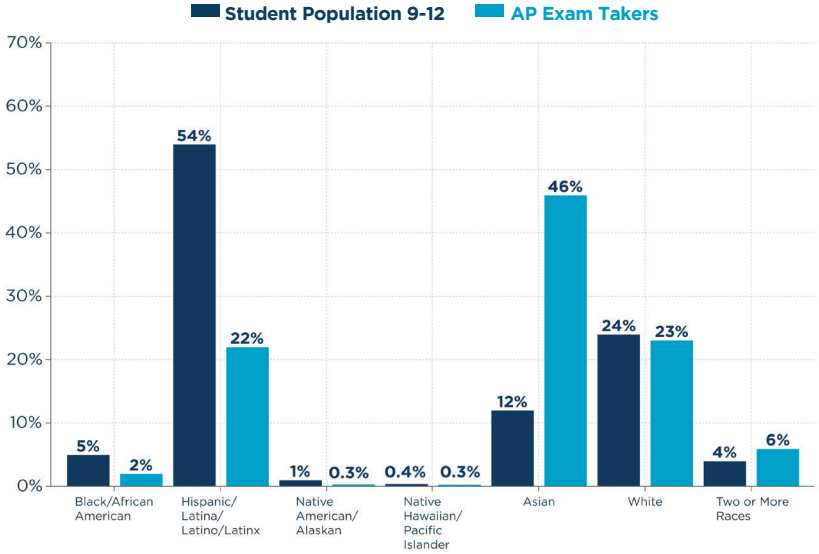
Data provided primarily by the Department of Education in partnership with the Kapor Center, Sacramento County Office of Education, and school catalogs, based on 2,654 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Colorado

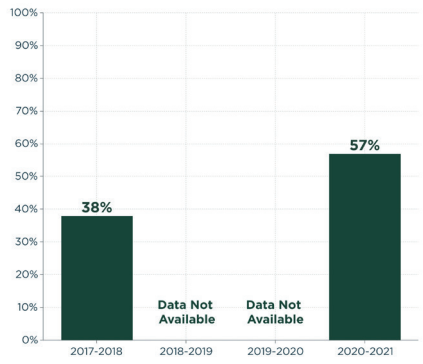
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	NO	YES
Certification	**Preservice**	**State CS Position**
NO	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	YES

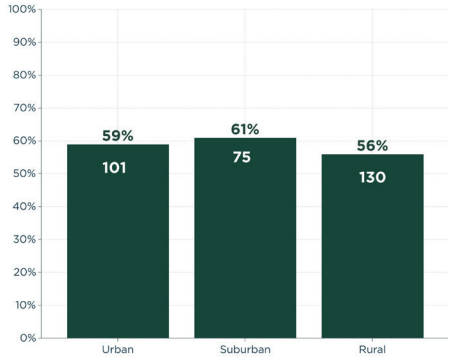
77.4% of CO high school students attend a school that offers foundational computer science. Of the 2,584 AP CS exams taken in Colorado in school year 2020-21, **26% were female.** Course enrollment data for all foundational computer science courses is not available from Colorado. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

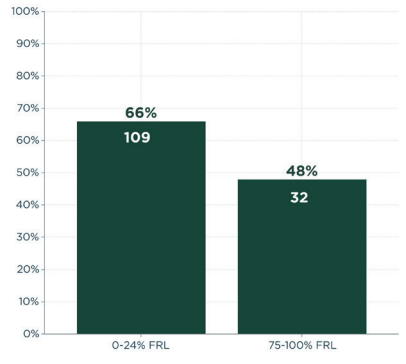
Access by School Year



Access by Geography



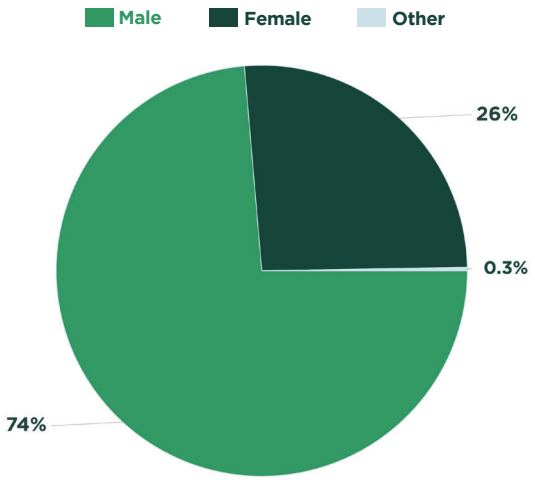
Access by % FRL in the School



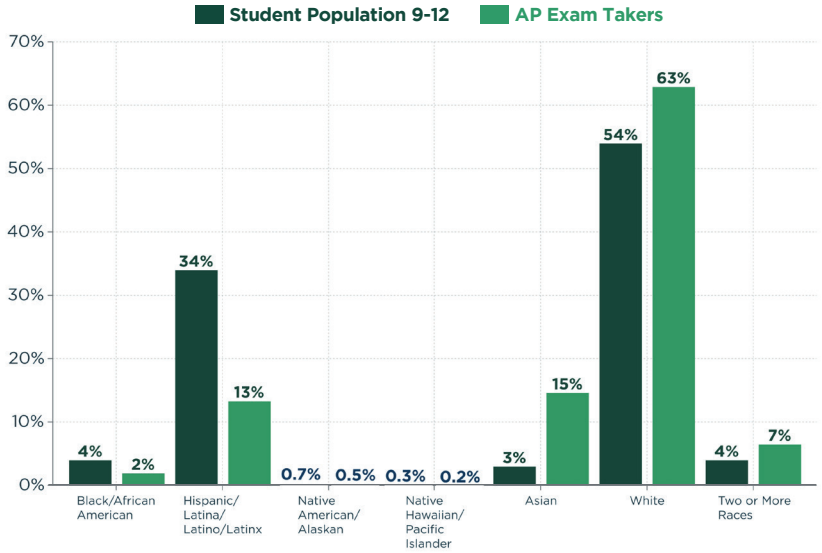
Data provided primarily by the Department of Education, based on 535 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Connecticut

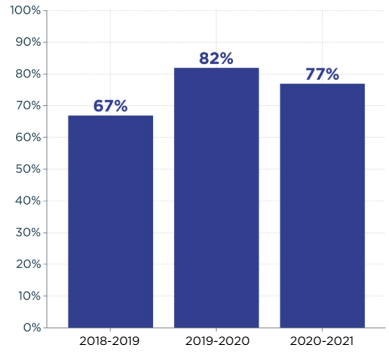
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	NO
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	DISTRICT DECISION	NO

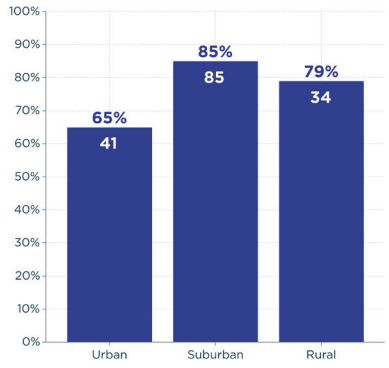
85.2% of CT high school students attend a school that offers foundational computer science, but only **5.3%** of students are **enrolled in a computer science course. 24.4% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

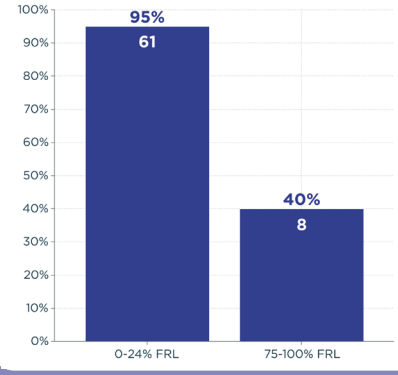
Access by School Year



Access by Geography



Access by % FRL in the School

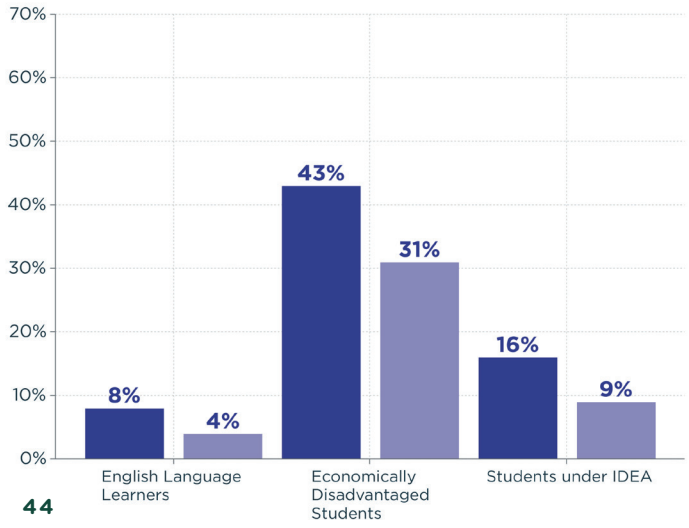


Data provided primarily by the school catalogs, based on 207 schools with high school grades. Participation data was masked at low counts. Both female and nonbinary students are reported under female. Participation data is from the 2019-2020 school year, and access report data is from the 2020-2021 school year.

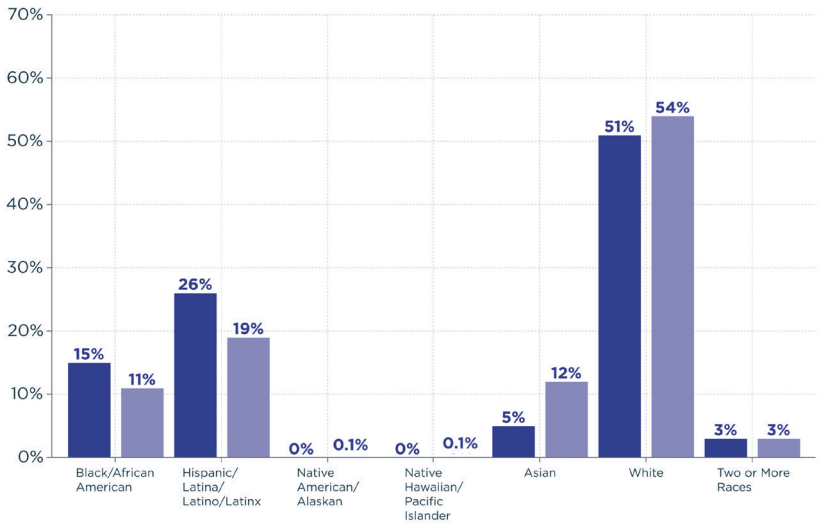
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Delaware

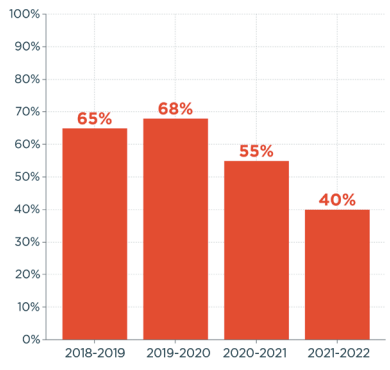
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	NO
Certification	**Preservice**	**State CS Position**
NO	NO	NO
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	NO

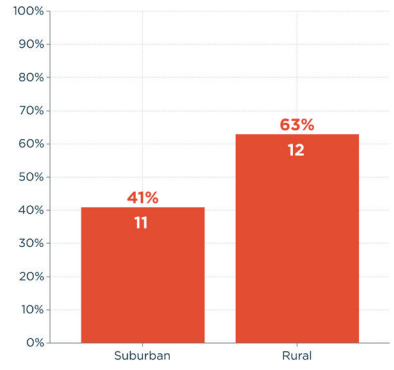
59.9% of DE high school students attend a school that offers foundational computer science, but only **4.1%** of students are **enrolled in a computer science course. 26.9% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year



Access by Geography

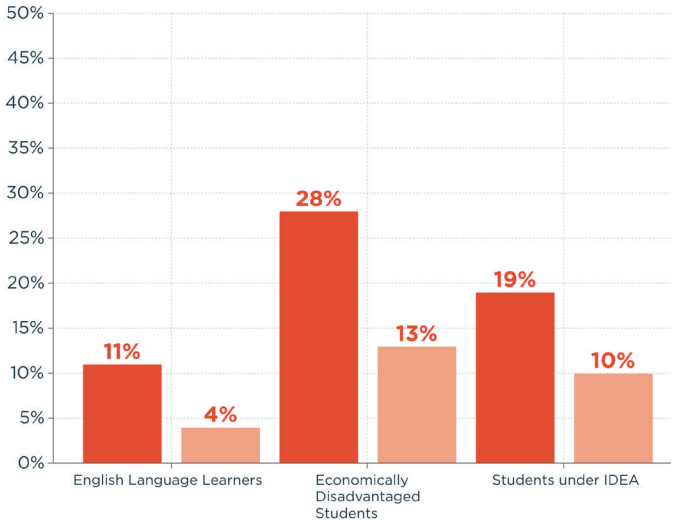


Data provided primarily by the Department of Education, based on 58 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

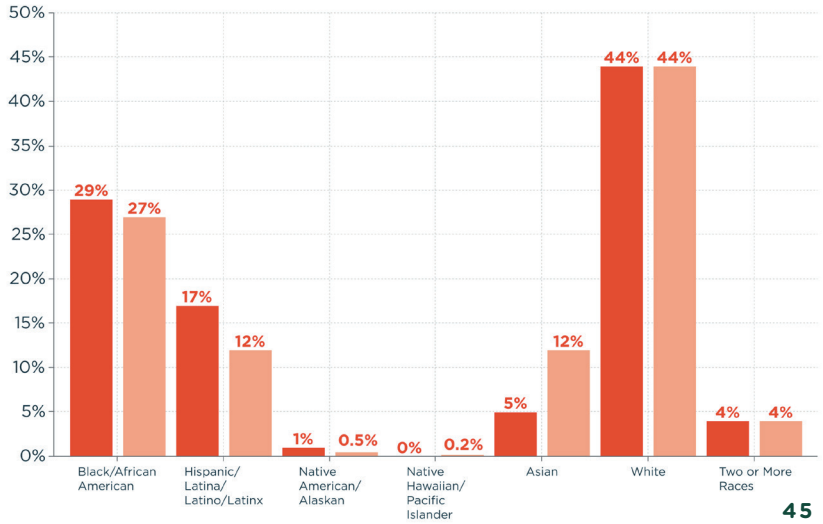
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



District of Columbia

Policies to Make CS Fundamental

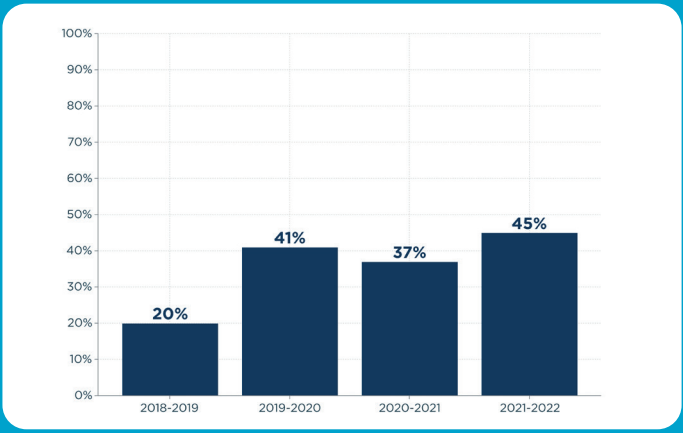
State Plan	Standards	Funding
NO	NO	NO

Certification	Preservice	State CS Position
YES	NO	NO

Require HS to Offer	Can Count	Admissions
NO	YES	NO

57.3% of DC high school students attend a school that offers foundational computer science. Of the 352 AP CS exams taken in District of Columbia in school year 2020-21, **36% were female.** Course enrollment data for all foundational computer science courses is not available from the District of Columbia. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

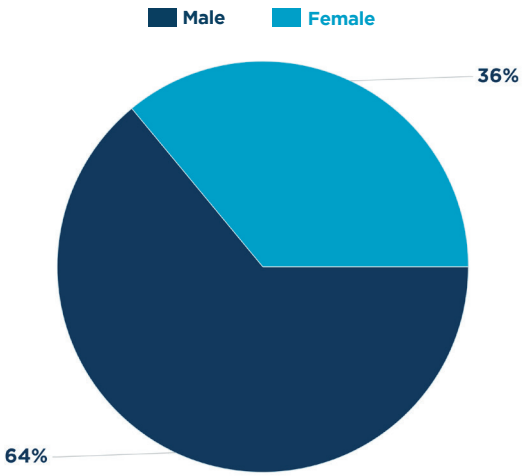
Percentage of Public High Schools Offering Foundational Computer Science



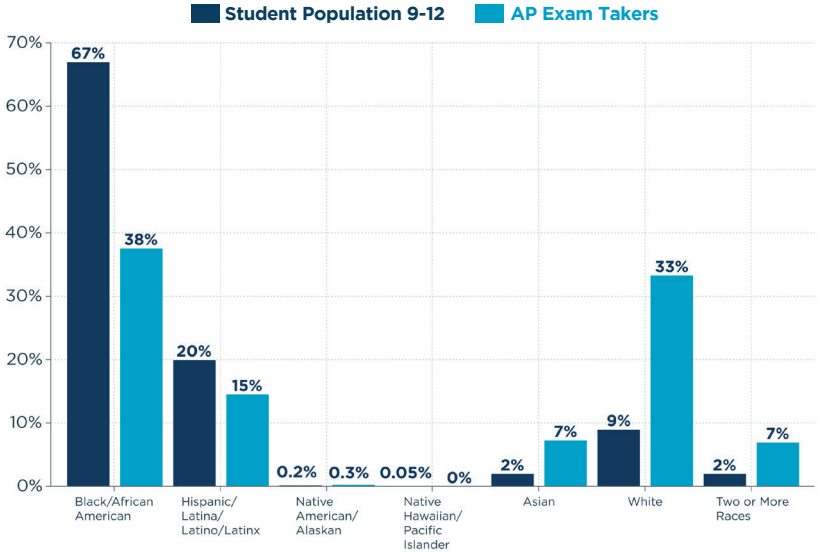
Data provided primarily by the school catalogs, based on 42 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Florida

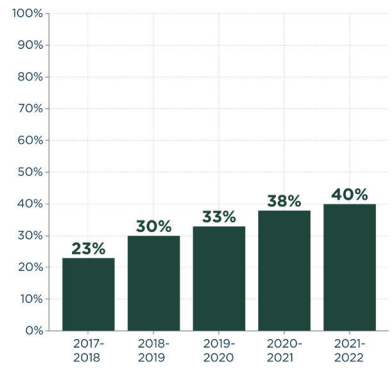
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	NO

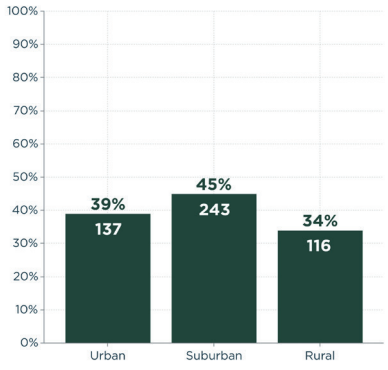
75.2% of FL high school students attend a school that offers foundational computer science, but only **2.6%** of students are **enrolled in a computer science course. 29.2% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

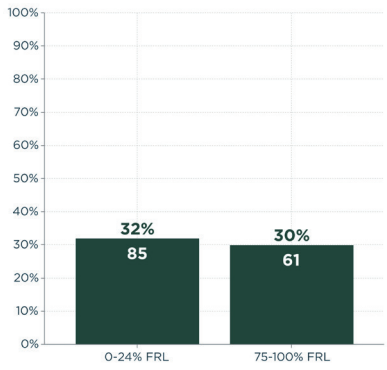
Access by School Year



Access by Geography



Access by % FRL in the School

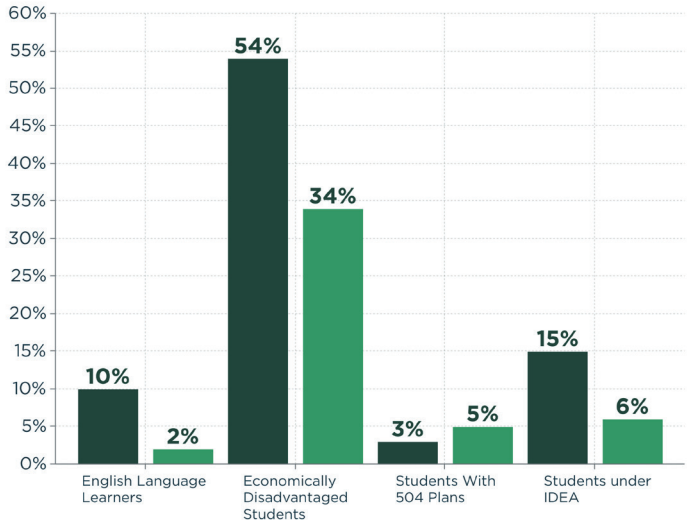


Data provided primarily by the Department of Education, based on 1,255 schools with high school grades. Participation data was masked at low counts.

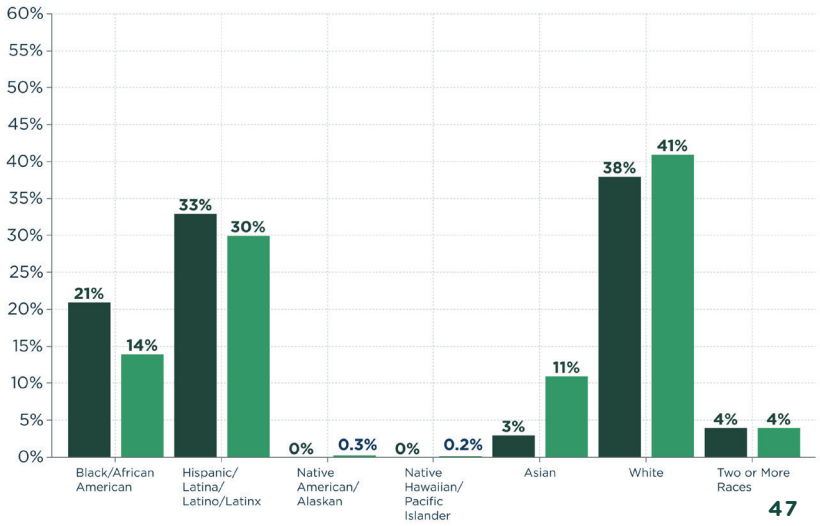
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Georgia

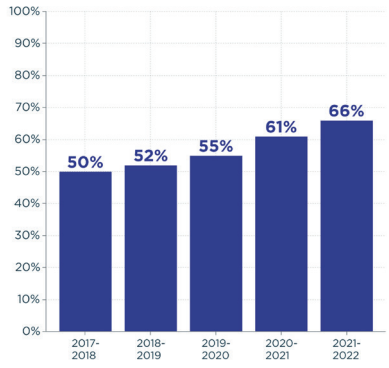
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	IN PROGRESS	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

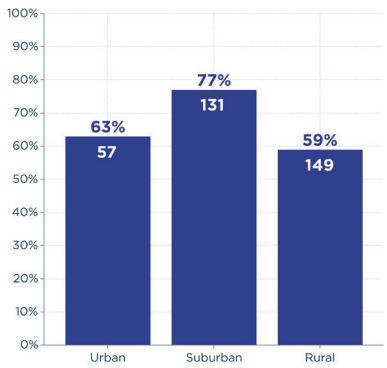
85.3% of GA high school students attend a school that offers foundational computer science, but only **3.6%** of students are **enrolled in a computer science course. 28.6% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

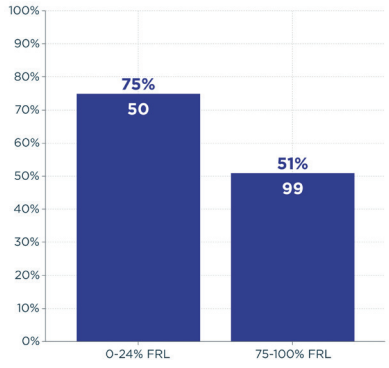
Access by School Year



Access by Geography



Access by % FRL in the School

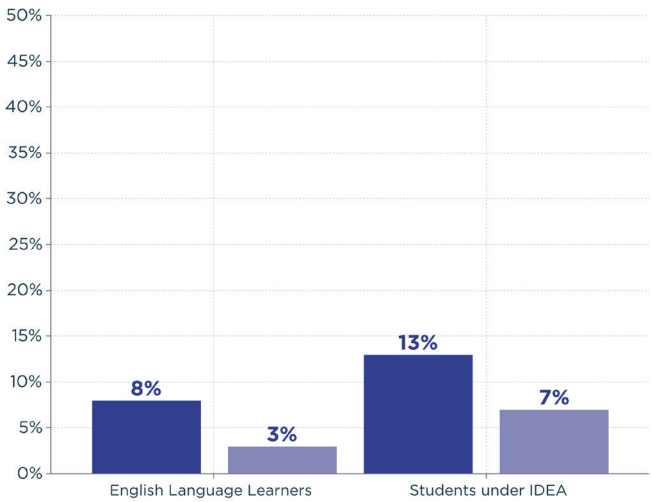


Data provided primarily by the Department of Education and school catalogs, based on 513 schools with high school grades.

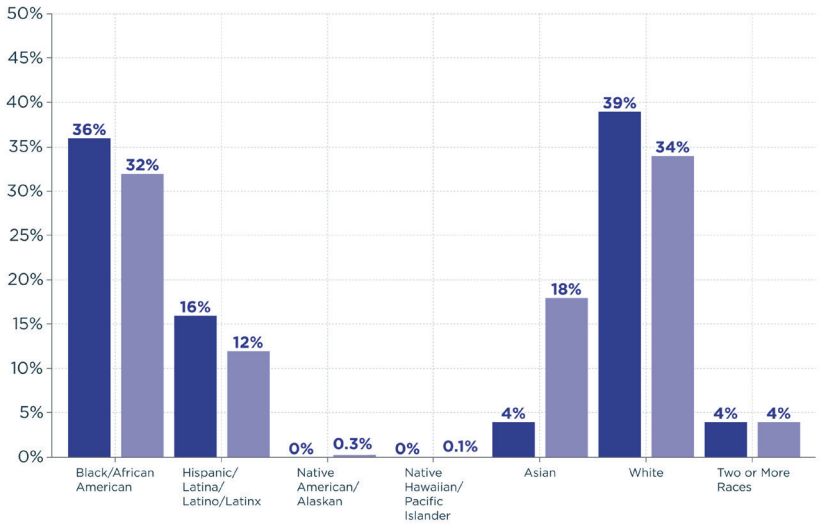
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Hawaii

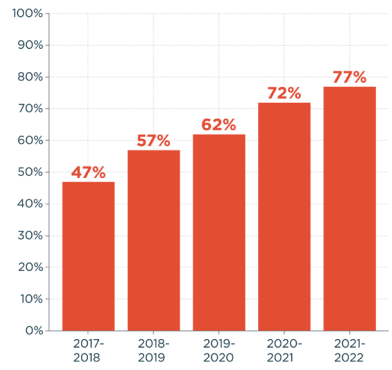
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	NO HISTORIC YES
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	NO

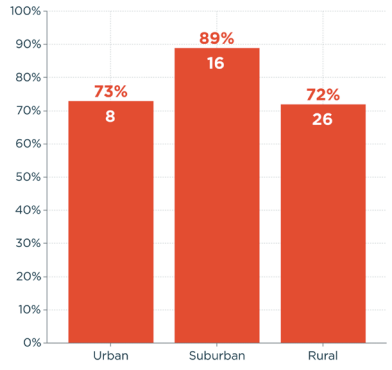
90.2% of HI high school students attend a school that offers foundational computer science, but only **3.7%** of students are **enrolled in a computer science course. 23.8% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

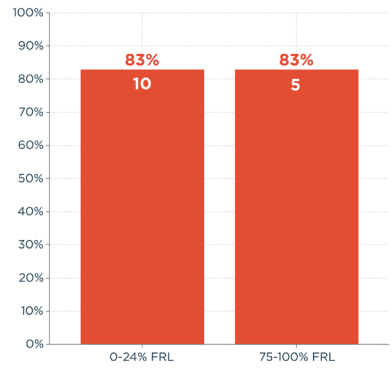
Access by School Year



Access by Geography



Access by % FRL in the School

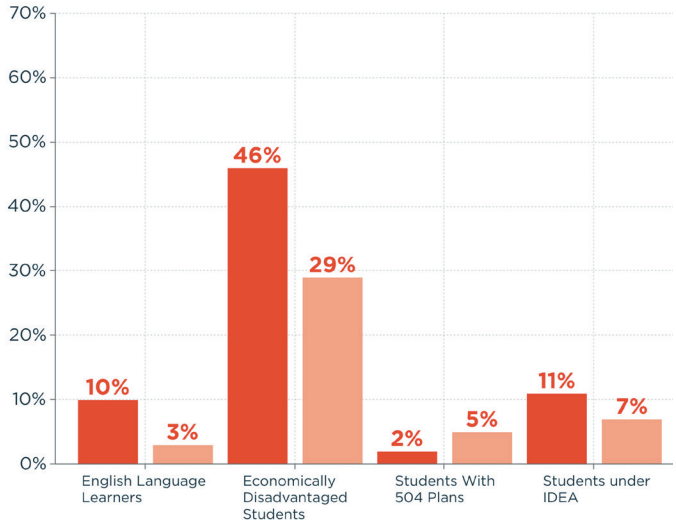


Data provided primarily by the Department of Education, based on 65 schools with high school grades. Participation data includes only public DOE school data, and access report data includes both public and public charter school data. Participation data was masked at low counts.

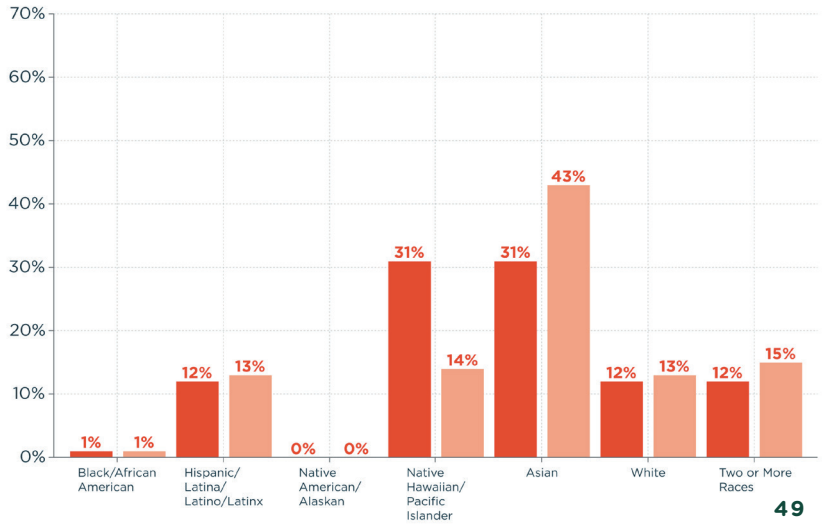
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Idaho

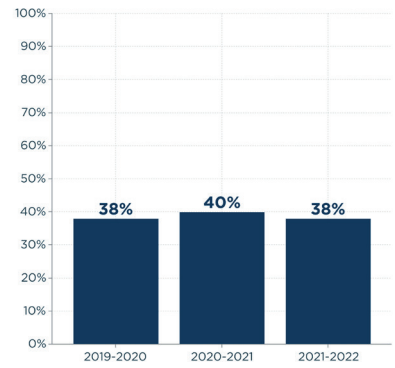
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

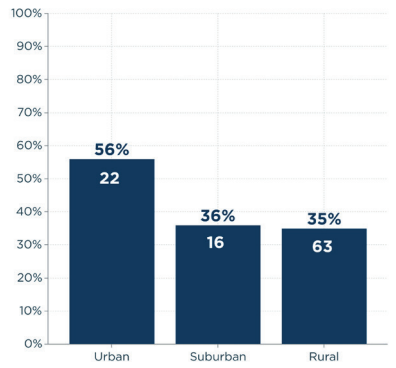
64.9% of ID high school students attend a school that offers foundational computer science, but only **1.4%** of students are **enrolled in a computer science course. 24.0% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

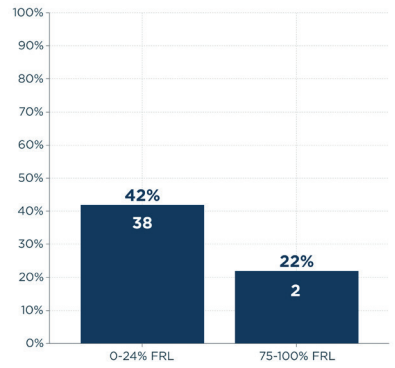
Access by School Year



Access by Geography



Access by % FRL in the School

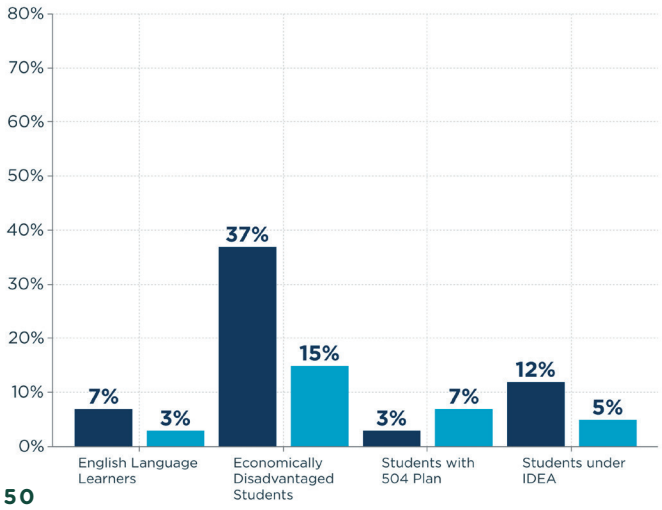


Data provided primarily by the Department of Education, based on 269 schools with high school grades. Participation data was masked at low counts.

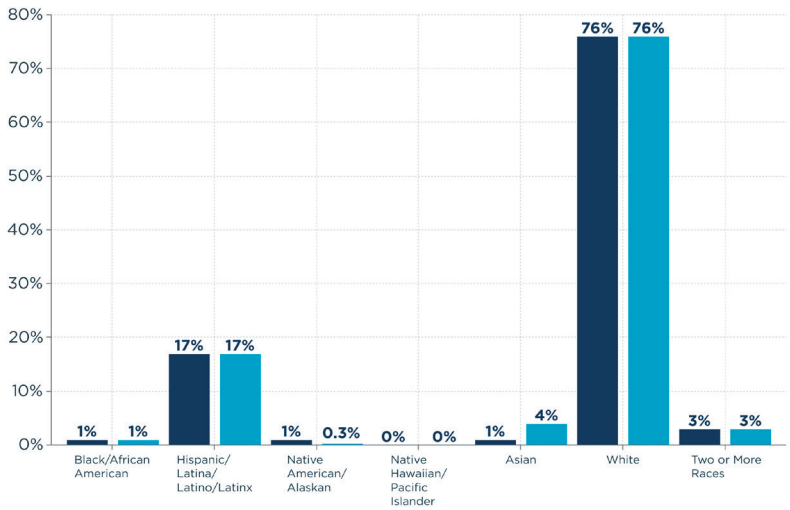
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Illinois

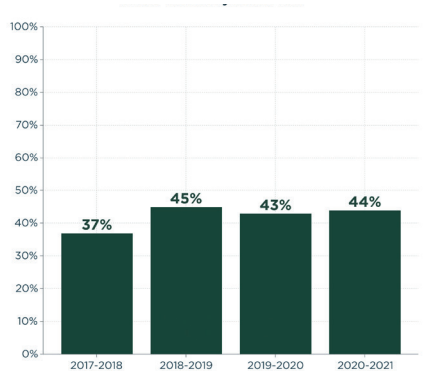
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	NO
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

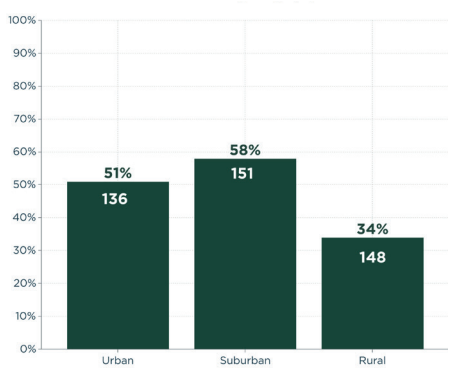
83.5% of IL high school students attend a school that offers foundational computer science. Of the 8,576 AP CS exams taken in Illinois in school year 2020-21, **32% were female.** Course enrollment data for all foundational computer science courses is not available from Illinois. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

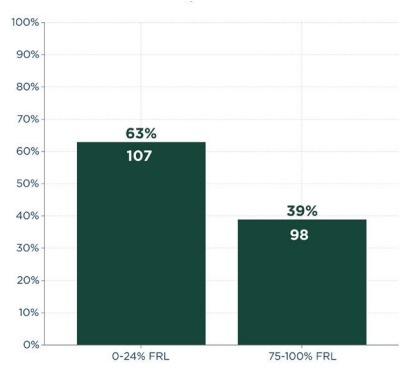
Access by School Year



Access by Geography



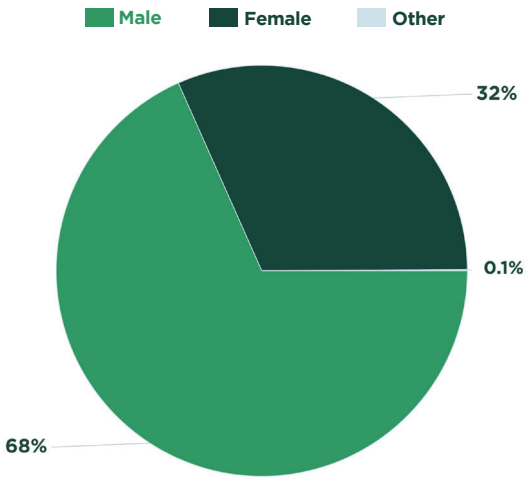
Access by % FRL in the School



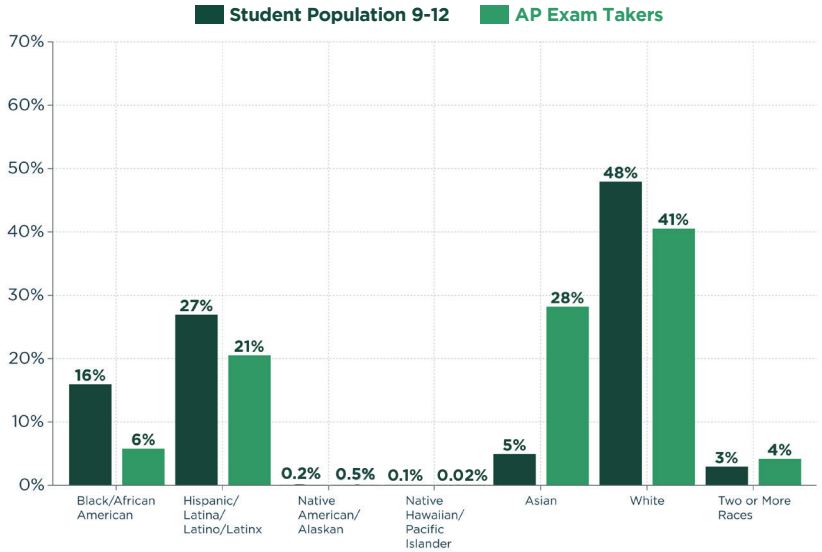
Data provided primarily by the Department of Education, based on 999 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Indiana

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES

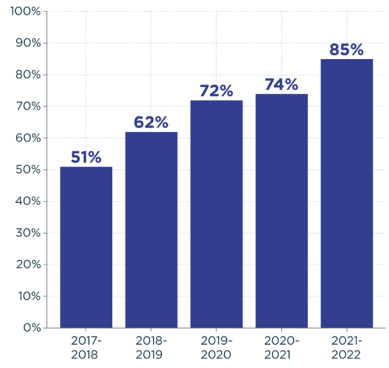
Certification	Preservice	State CS Position
YES	YES	YES

Require HS to Offer	Can Count	Admissions
YES	YES	YES

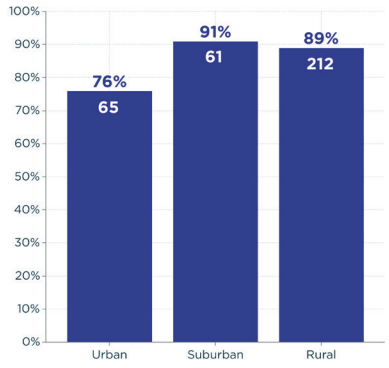
91.7% of IN high school students attend a school that offers foundational computer science, but only **5.8%** of students are **enrolled in a computer science course. 22.5% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

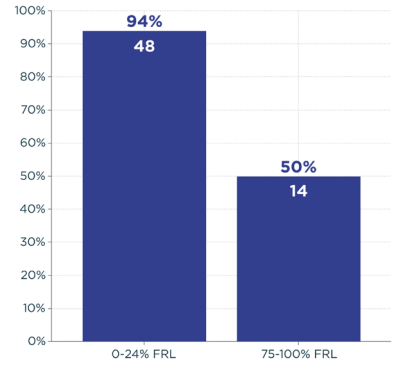
Access by School Year



Access by Geography



Access by % FRL in the School

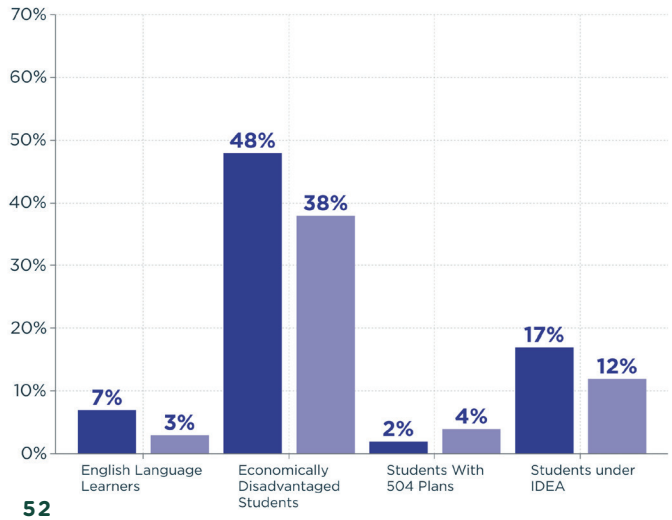


Data provided primarily by the Department of Education, based on 406 schools with high school grades.

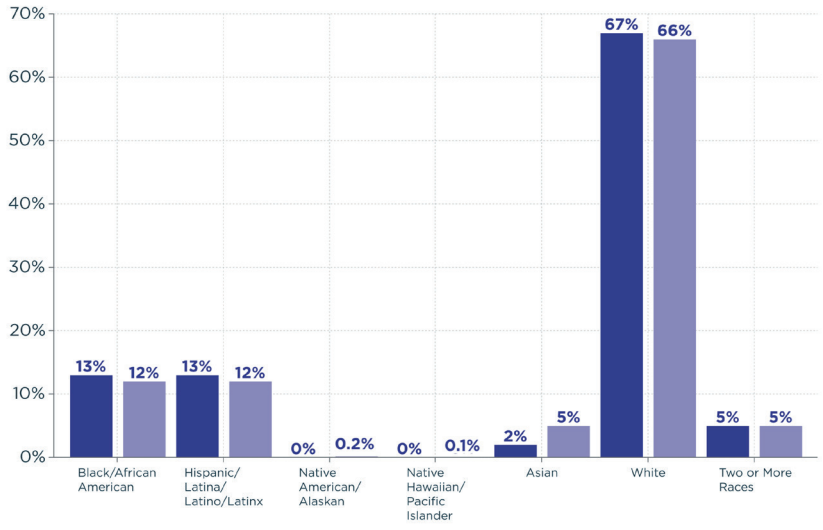
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Iowa

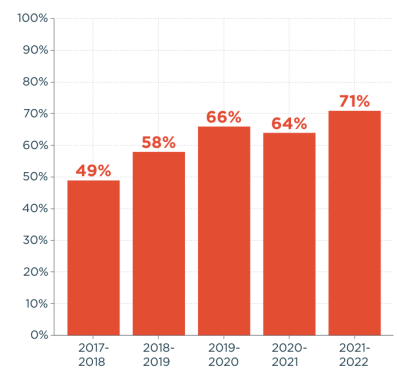
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	DISTRICT DECISION	YES

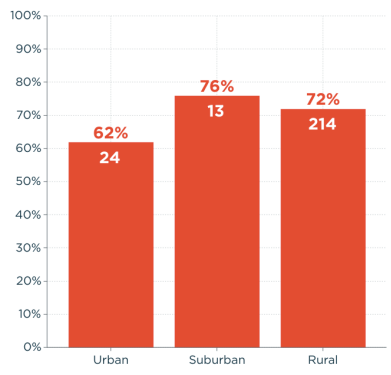
78.8% of IA high school students attend a school that offers foundational computer science, but only **4.2%** of students are **enrolled in a computer science course. 19.9% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

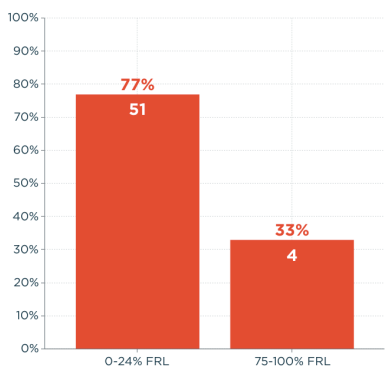
Access by School Year



Access by Geography



Access by % FRL in the School

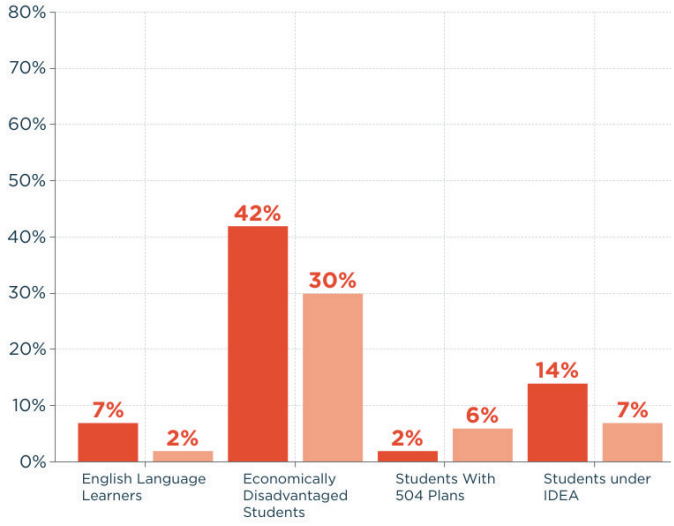


Data provided primarily by the Department of Education, based on 355 schools with high school grades.

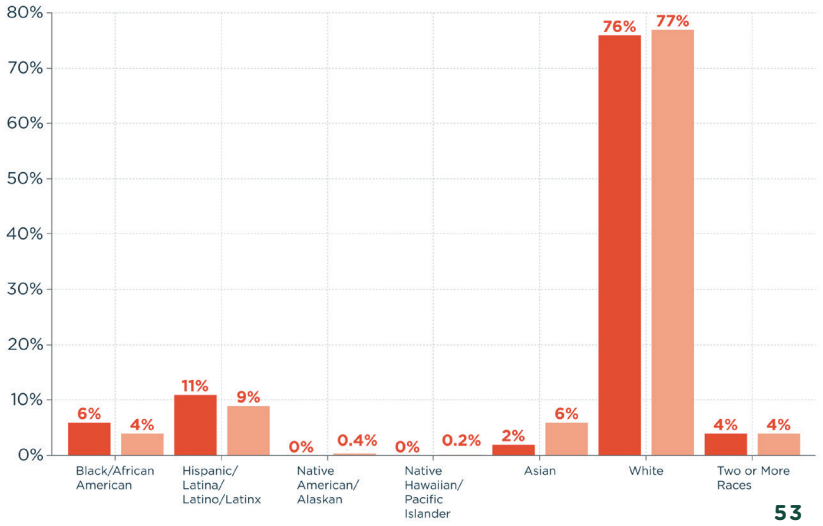
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Kansas

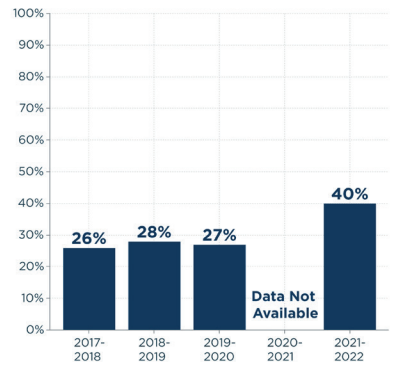
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
IN PROGRESS	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	DISTRICT DECISION	NO

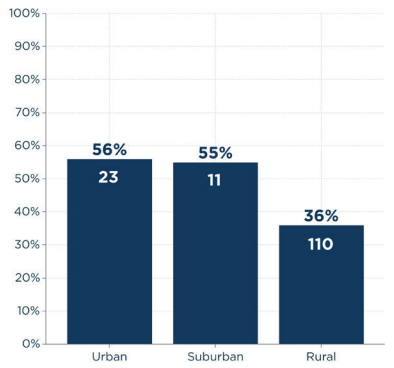
61.0% of KS high school students attend a school that offers foundational computer science, but only **2.9%** of students are **enrolled in a computer science course.** **15.0% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

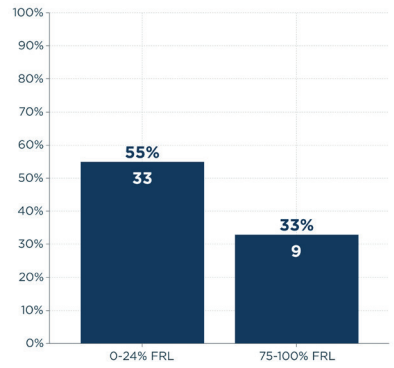
Access by School Year



Access by Geography



Access by % FRL in the School

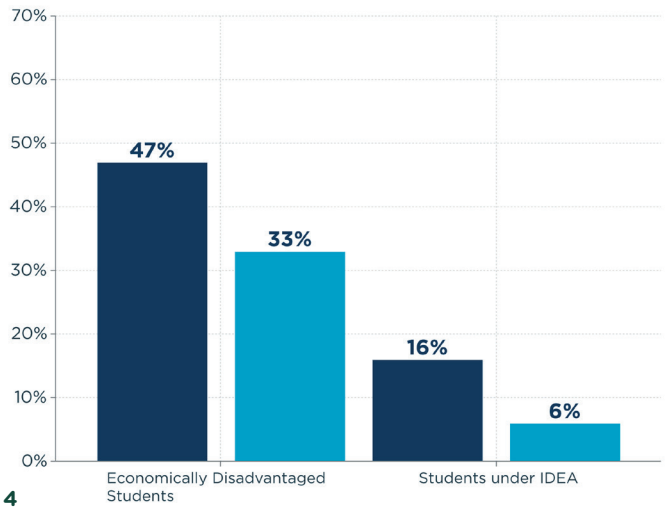


Data provided primarily by the Department of Education, based on 364 schools with high school grades. Participation data was masked at low counts.

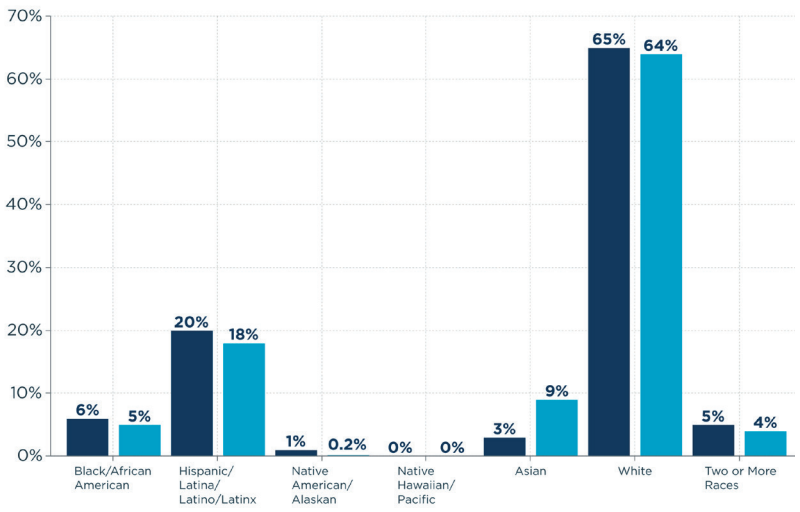
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Kentucky

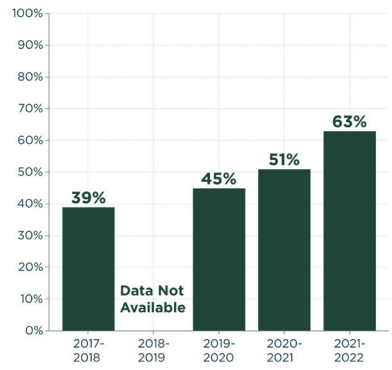
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	YES

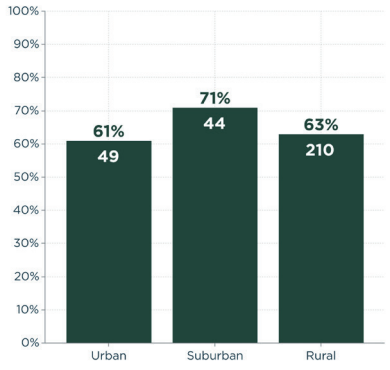
93.8% of KY high school students attend a school that offers foundational computer science, but only **10%** of students are **enrolled in a computer science course. 28.7% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

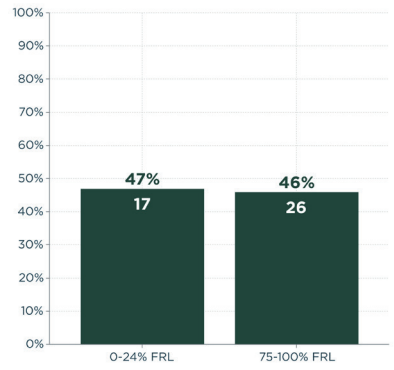
Access by School Year



Access by Geography



Access by % FRL in the School

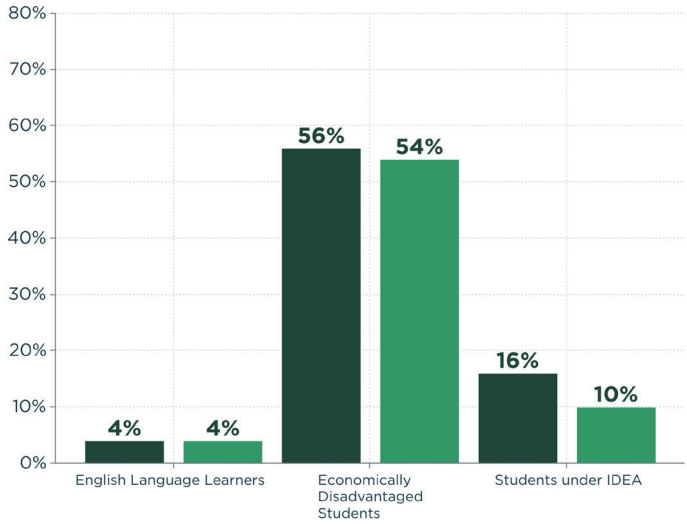


Data provided primarily by the school catalogs, based on 489 schools with high school grades.

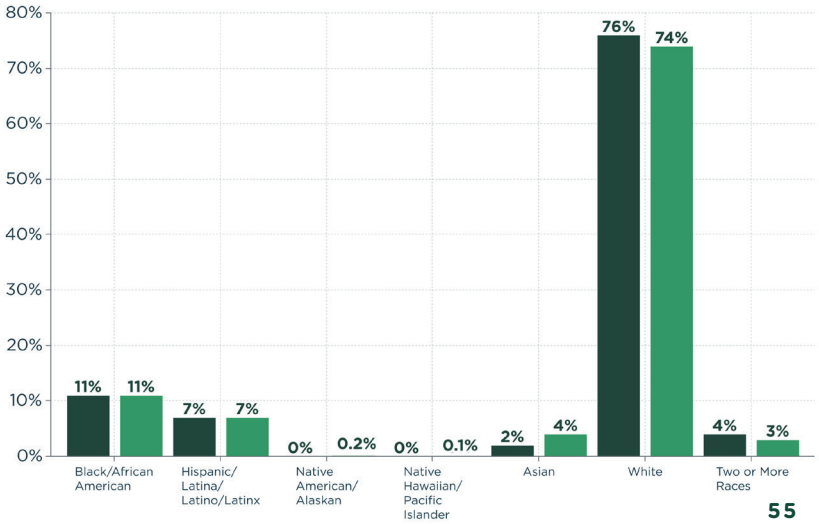
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Louisiana

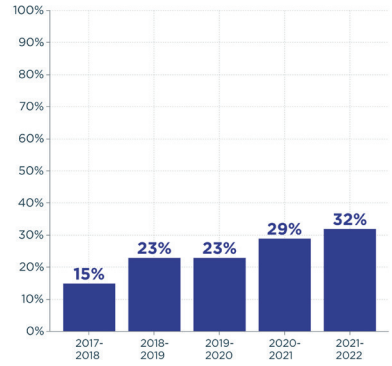
Policies to Make CS Fundamental

State Plan	Standards	Funding
IN PROGRESS	NO	NO
Certification	**Preservice**	**State CS Position**
YES	NO	NO
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	YES

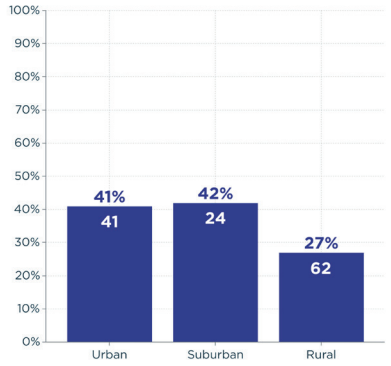
45.8% of LA high school students attend a school that offers foundational computer science, but only **1.8%** of students are **enrolled in a computer science course. 39.4% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

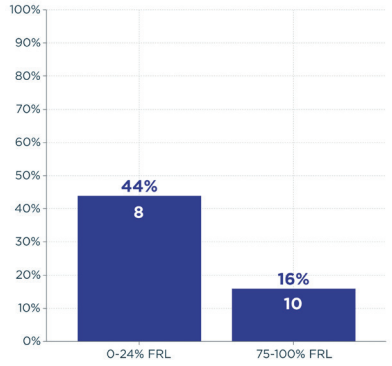
Access by School Year



Access by Geography



Access by % FRL in the School

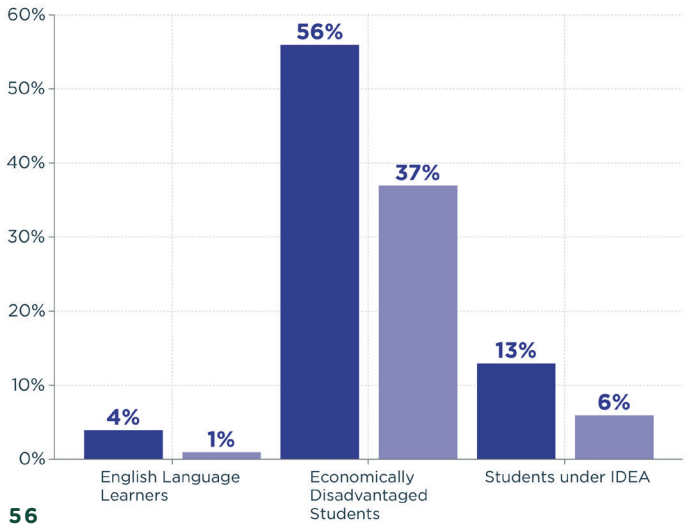


Data provided primarily by the Department of Education, based on 392 schools with high school grades. Participation data is from the 2019-2020 school year, and access report data is from the 2020-2021 school year.

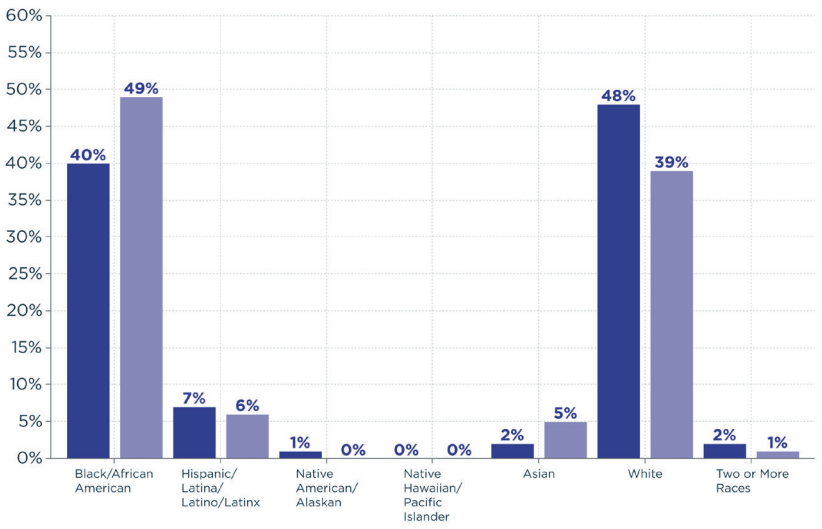
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Maine

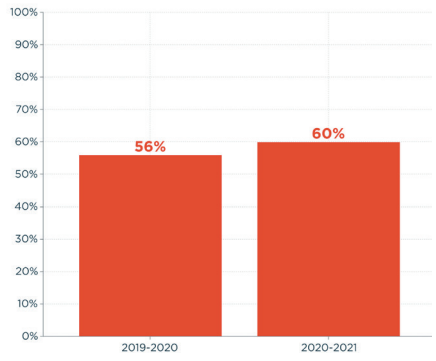
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	NO	YES
Certification	**Preservice**	**State CS Position**
NO	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	NO

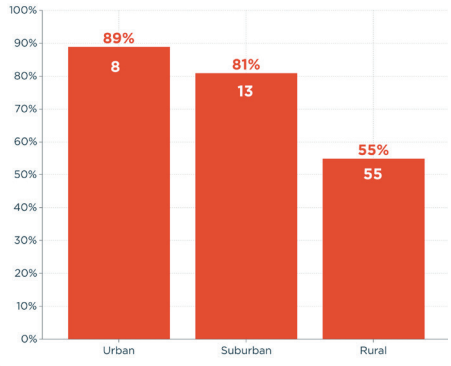
85.2% of ME high school students attend a school that offers foundational computer science. Of the 242 AP CS exams taken in Maine in school year 2020-21, **27% were female.** Course enrollment data for all foundational computer science courses is not available from Maine. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year



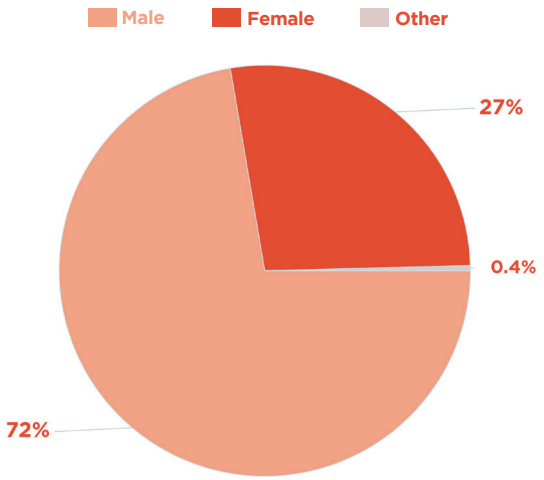
Access by Geography



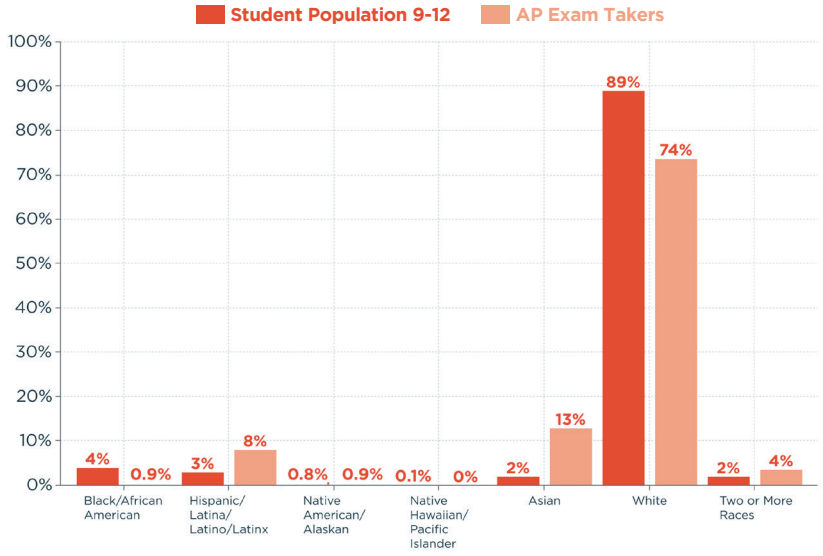
Data provided primarily by the Department of Education and school catalogs, based on 126 schools with high school grades. The state reports students who are low-income rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Maryland

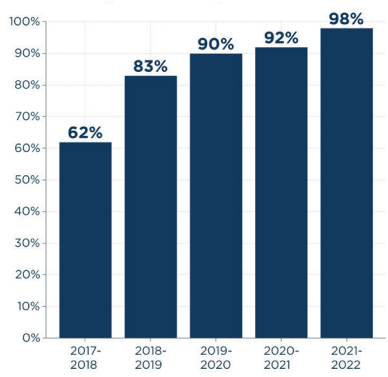
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

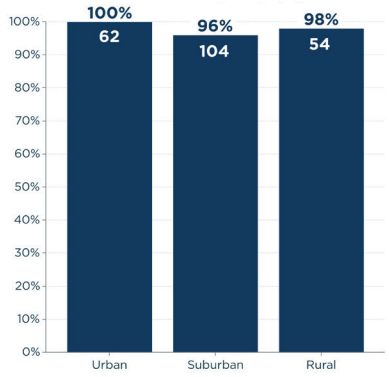
94.2% of MD high school students attend a school that offers foundational computer science, but only **14.3%** of students are **enrolled in a computer science course. 42.4%** of students enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

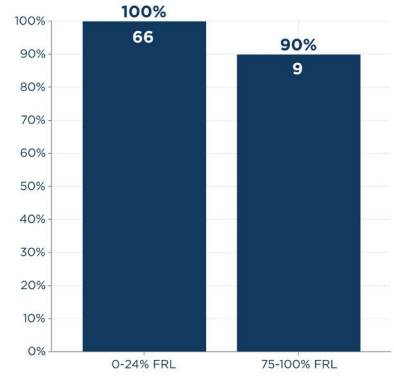
Access by School Year



Access by Geography



Access by % FRL in the School

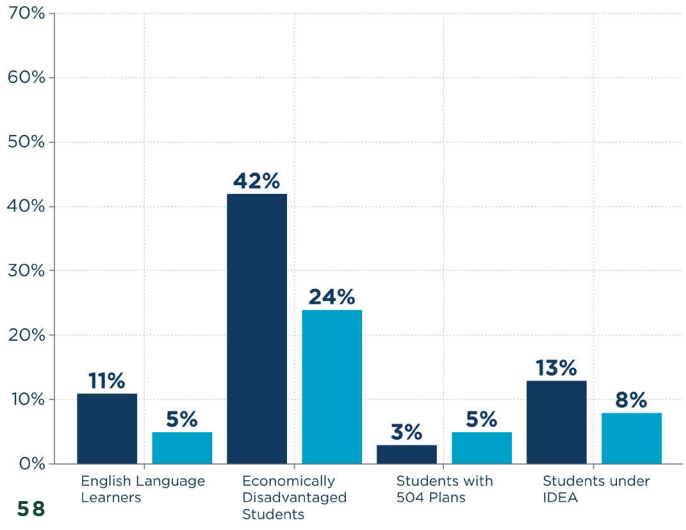


Data provided primarily by the Department of Education and school catalogs, based on 226 schools with high school grades. The state reports economically disadvantaged students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

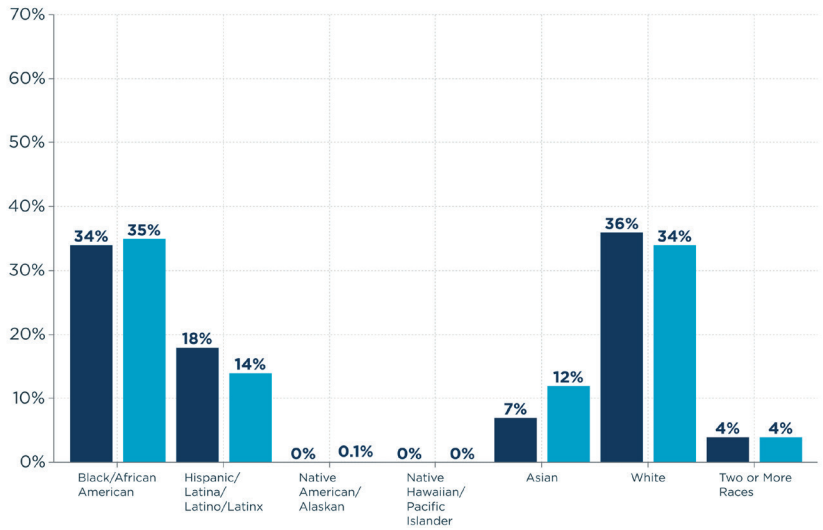
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Massachusetts

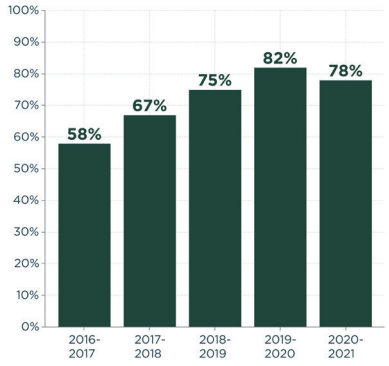
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES HISTORIC YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	YES

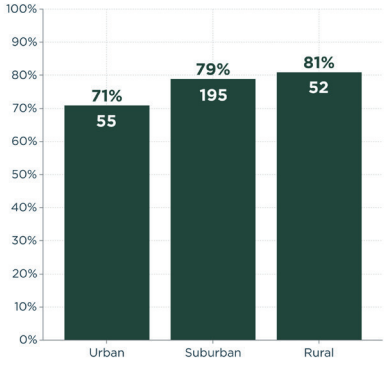
84.7% of MA high school students attend a school that offers foundational computer science, but only **5.8%** of students are **enrolled in a computer science course. 28.4% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year



Access by Geography

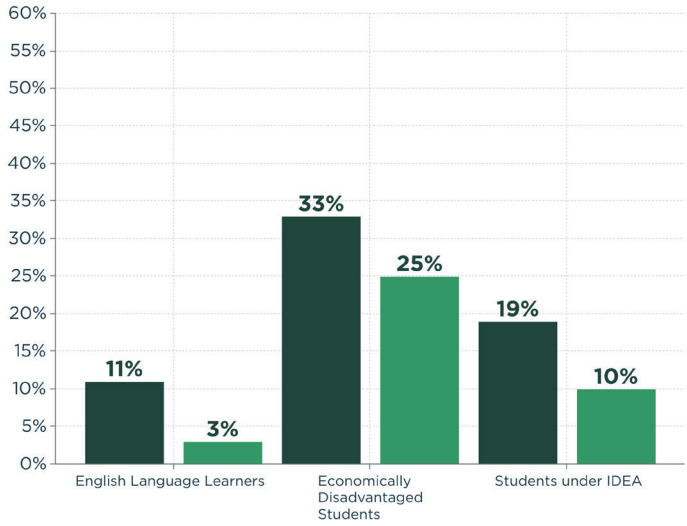


Data provided primarily by the Department of Education, based on 389 schools with high school grades. The state reports economically disadvantaged students rather than students who qualify for free and reduced-price meals. If students select "Hispanic or Latino" and a race category, they are counted as Hispanic or Latino, not 2 or more races. Students who select 2 or more races and not Hispanic or Latino are counted as 2 or more races. These students are not included in other categories. Participation data was masked at low counts.

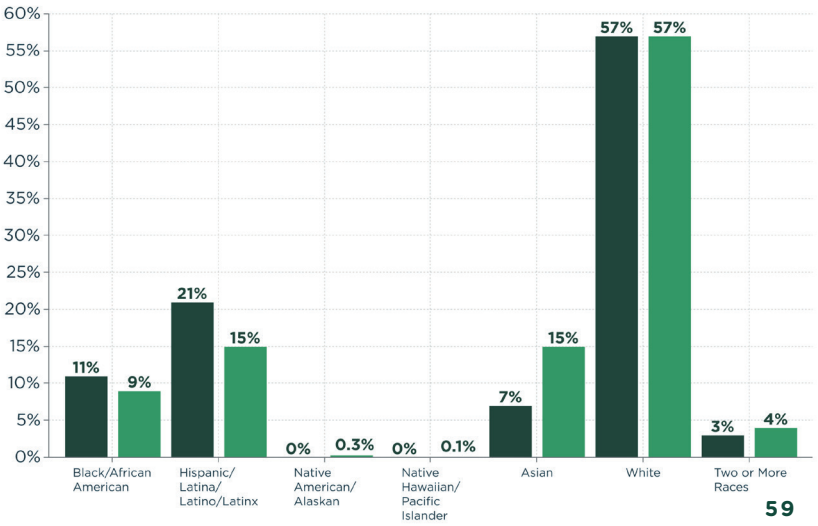
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Michigan

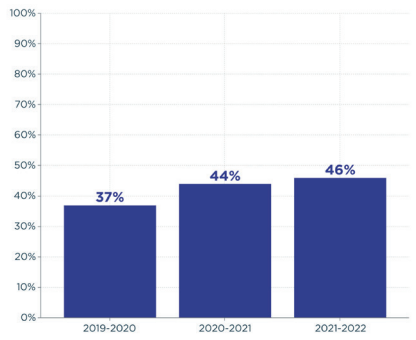
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
NO	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	NO

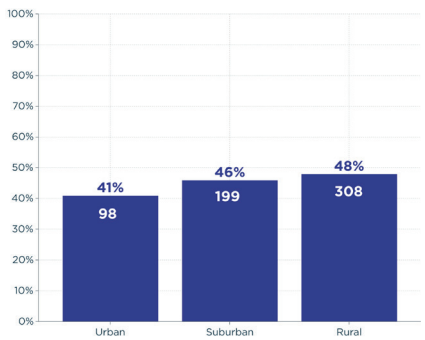
74% of MI high school students attend a school that offers foundational computer science. Of the 4,504 AP CS exams taken in Michigan in school year 2020-21, **30% were female.** Course enrollment data for all foundational computer science courses is not available from Michigan. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

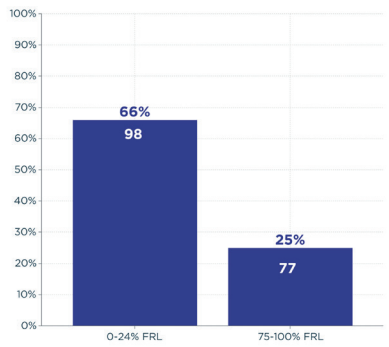
Access by School Year



Access by Geography



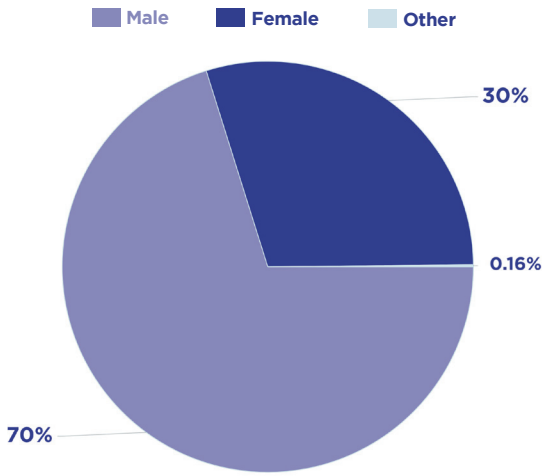
Access by % FRL in the School



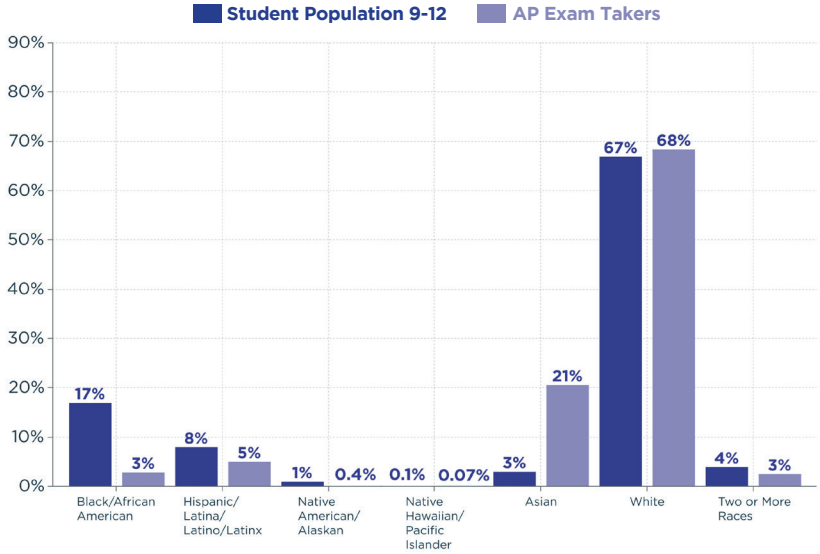
Data provided primarily by the school catalogs, based on 1,314 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Minnesota

Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	NO	NO

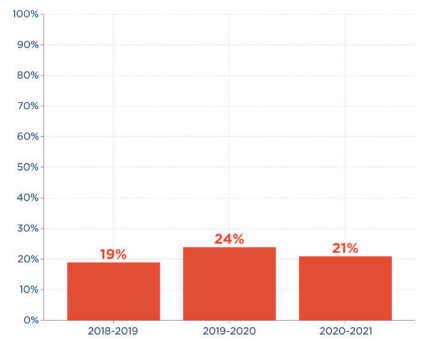
Certification	Preservice	State CS Position
NO	NO	YES

Require HS to Offer	Can Count	Admissions
NO	YES	NO

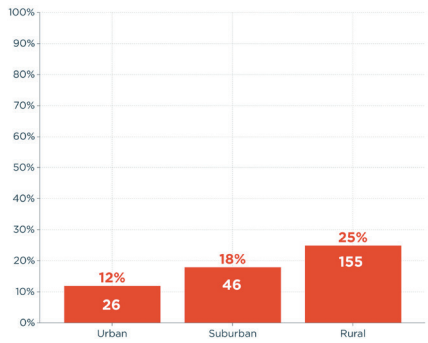
43.5% of MN high school students attend a school that offers foundational computer science. Of the 1,432 AP CS exams taken in Minnesota in school year 2020-21, **23% were female.** Course enrollment data for all foundational computer science courses is not available from Minnesota. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

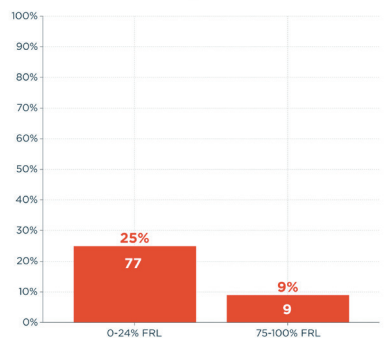
Access by School Year



Access by Geography



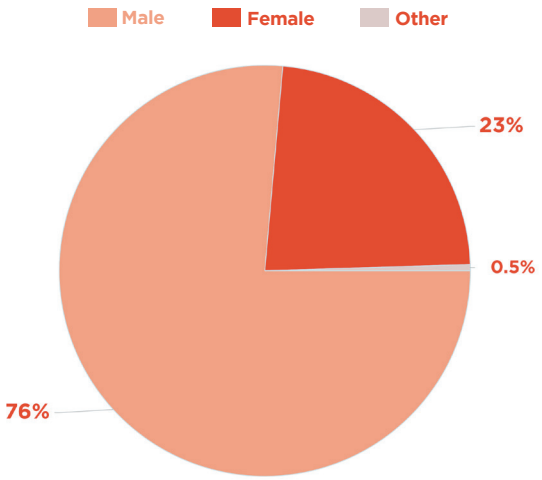
Access by % FRL in the School



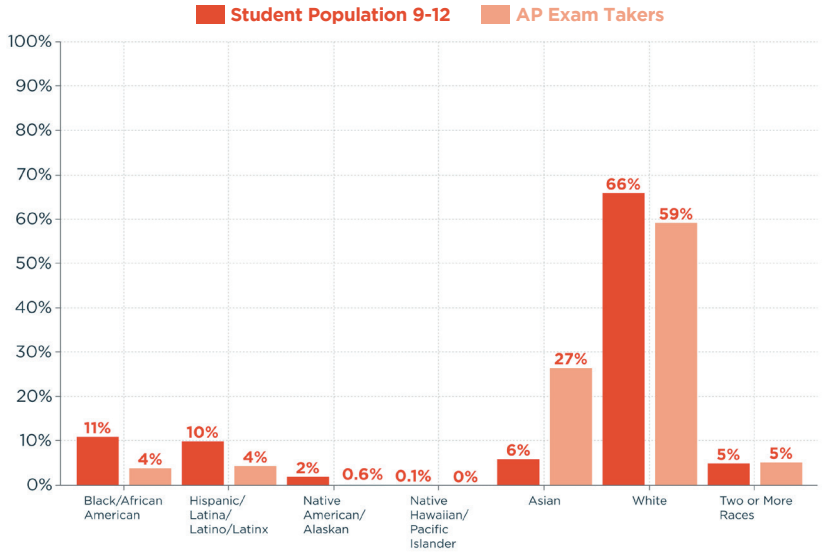
Data provided primarily by the Department of Education and school catalogs, based on 1,100 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Mississippi

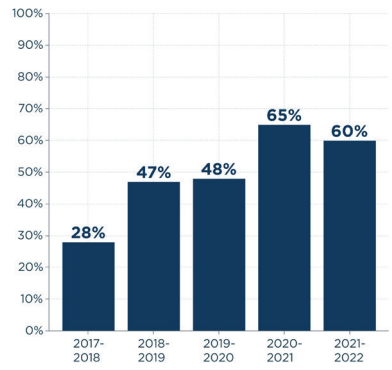
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	NO	NO
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

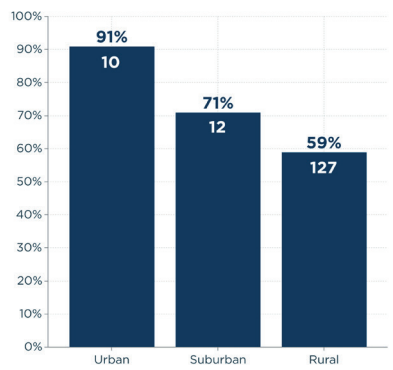
71.0% of MS high school students attend a school that offers foundational computer science, but only **6.5%** of students are **enrolled in a computer science course. 46.7% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

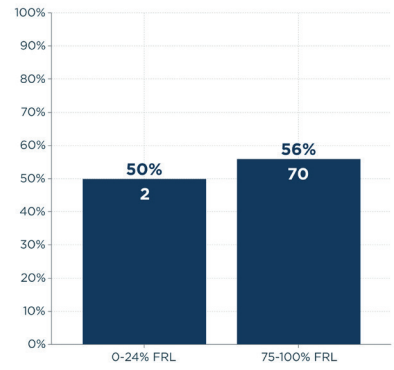
Access by School Year



Access by Geography



Access by % FRL in the School

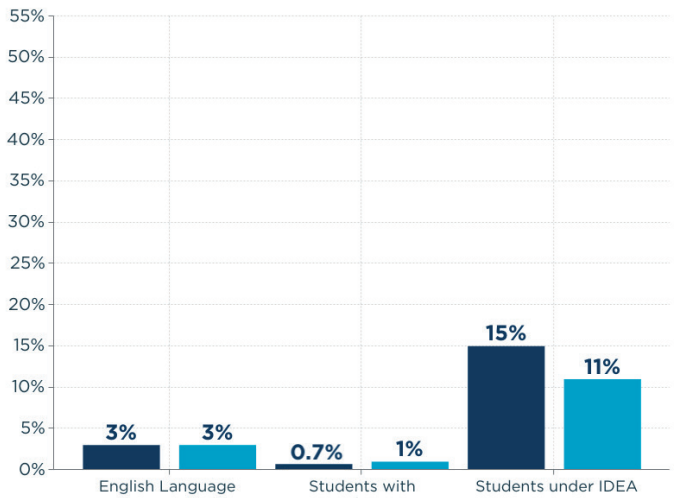


Data provided primarily by the Department of Education, based on 248 schools with high school grades. All students receive free and reduced-price meals.

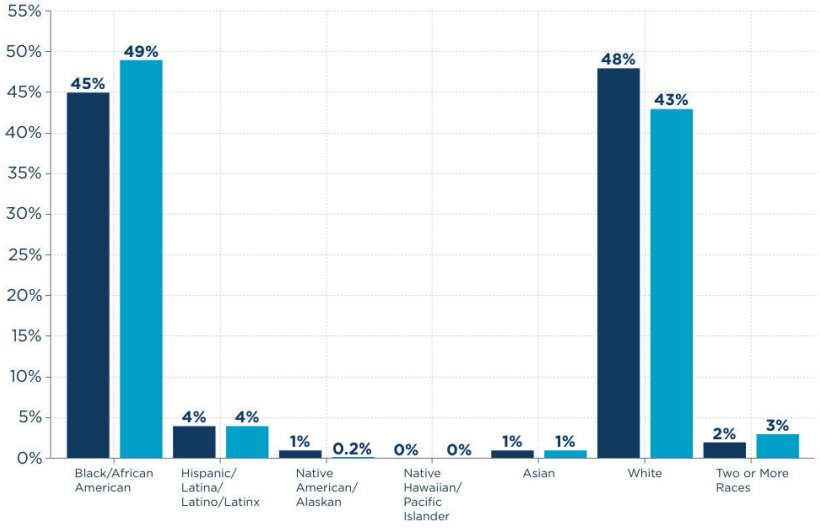
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Missouri

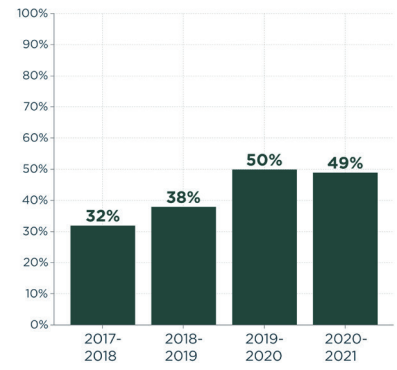
Policies to Make CS Fundamental

State Plan	Standards	Funding
IN PROGRESS	✓ YES	✓ YES
Certification	**Preservice**	**State CS Position**
✓ YES	✗ NO	IN PROGRESS
Require HS to Offer	**Can Count**	**Admissions**
✓ YES	✓ YES	✓ YES

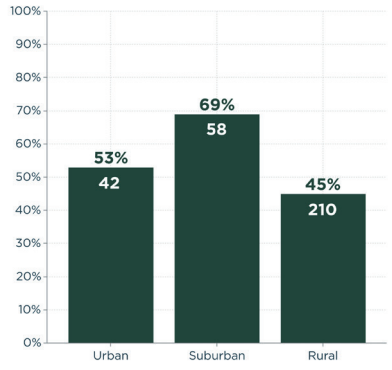
69.0% of MO high school students attend a school that offers foundational computer science, but only **3.3%** of students are **enrolled in a computer science course. 24.7% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

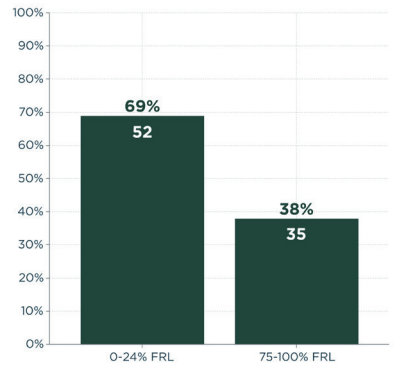
Access by School Year



Access by Geography



Access by % FRL in the School

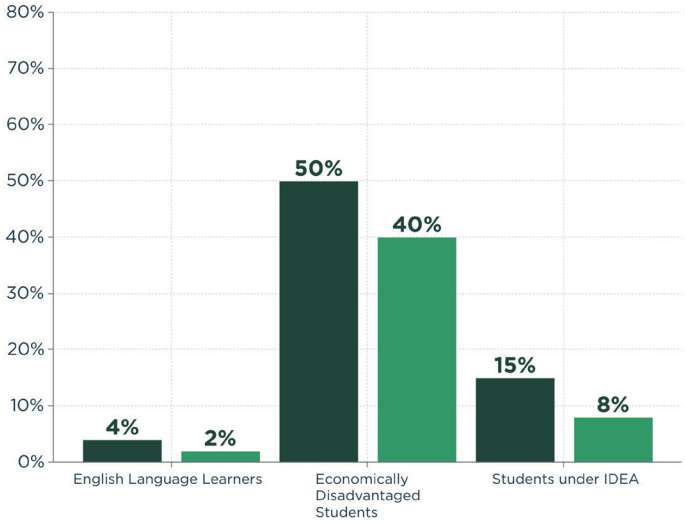


Data provided primarily by the Department of Education, based on 634 schools with high school grades. Participation data was masked at low counts. Participation data is from the 2019-2020 school year, and access report data is from the 2020-21 school year.

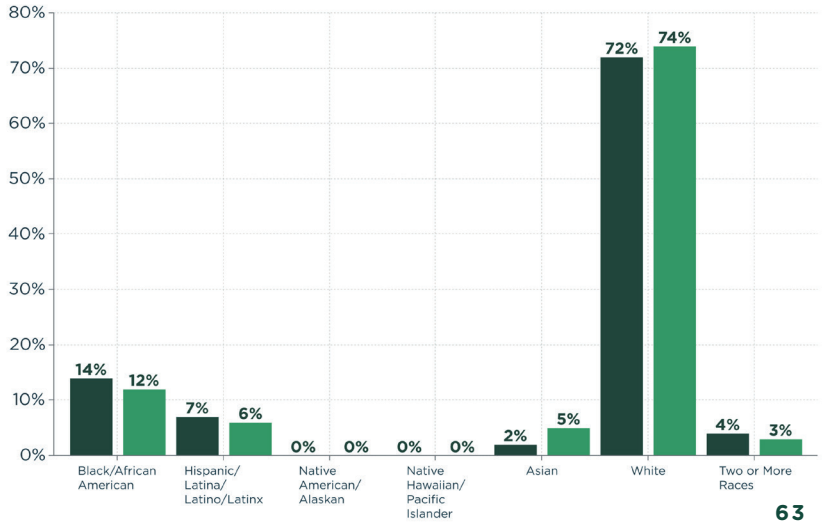
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Montana

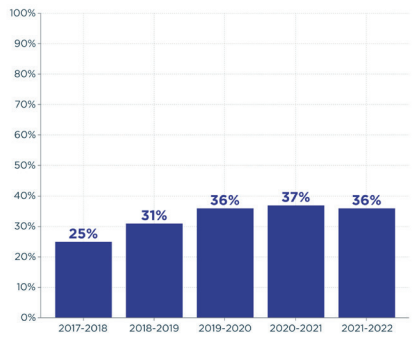
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	NO
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	NO

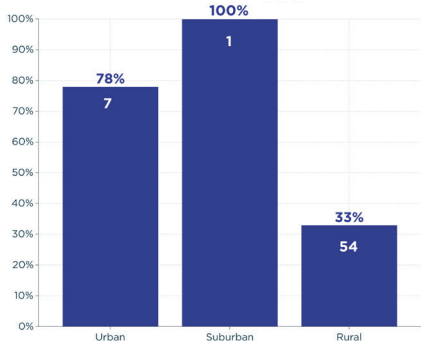
62.9% of MT high school students attend a school that offers foundational computer science. Of the 42 AP CS exams taken in Montana in school year 2020-21, **21% were female.** Course enrollment data for all foundational computer science courses is not available from Montana. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

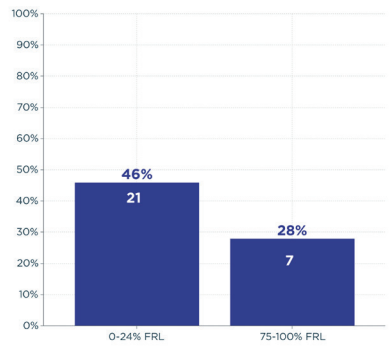
Access by School Year



Access by Geography



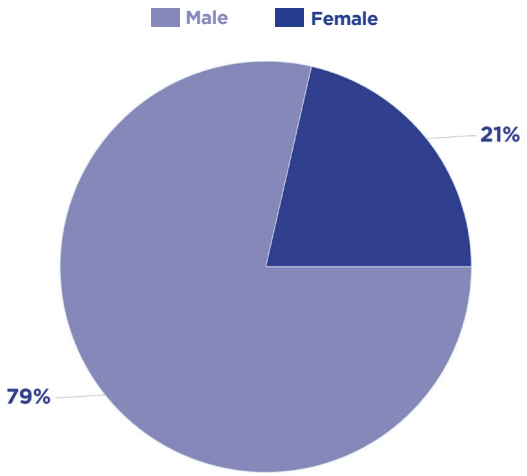
Access by % FRL in the School



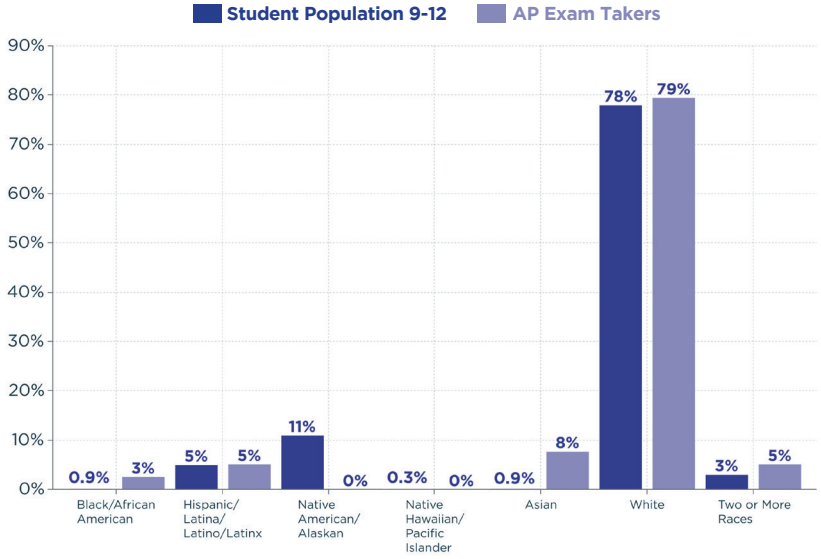
Data provided primarily by the Department of Education, based on 175 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Nebraska

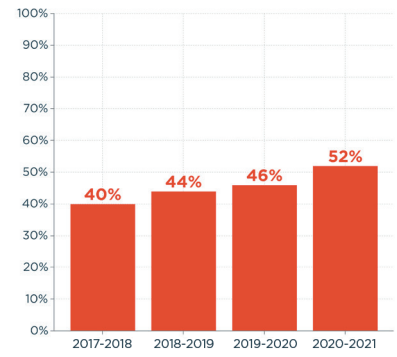
Policies to Make CS Fundamental

State Plan	Standards	Funding
IN PROGRESS	IN PROGRESS	⊗ NO
Certification	**Preservice**	**State CS Position**
⊗ NO	⊗ NO	⊗ NO
Require HS to Offer	**Can Count**	**Admissions**
✓ YES	GRAD REQUIREMENT	⊗ NO

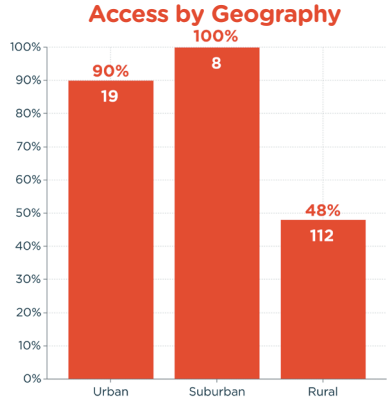
79.0% of NE high school students attend a school that offers foundational computer science, but only **3.6%** of students are **enrolled in a computer science course. 18.2% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

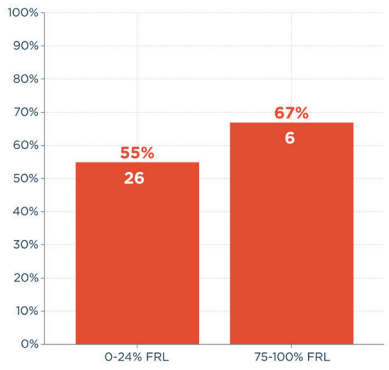
Access by School Year



Access by Geography



Access by % FRL in the School

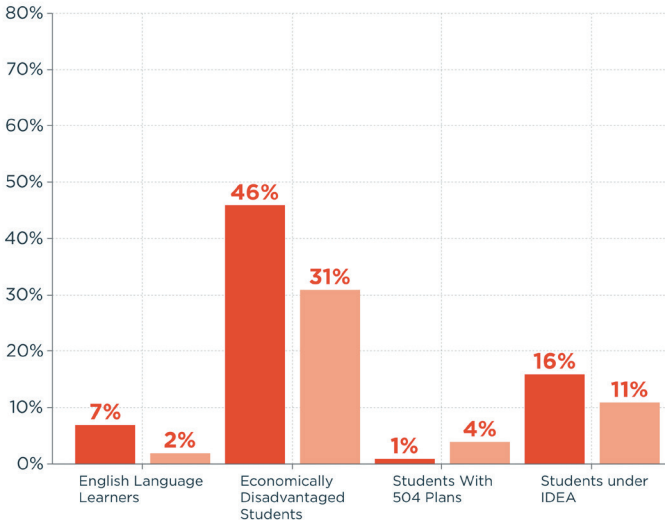


Data provided primarily by school catalogs, based on 269 schools with high school grades.

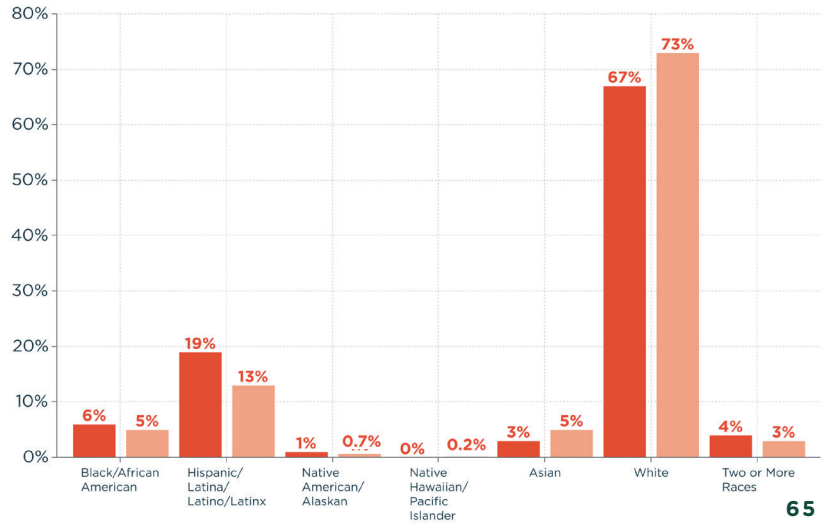
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Nevada

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES

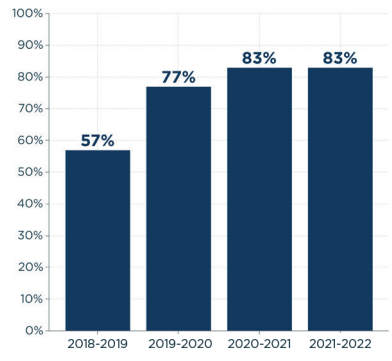
Certification	Preservice	State CS Position
YES	YES	YES

Require HS to Offer	Can Count	Admissions
YES	GRAD REQUIREMENT	YES

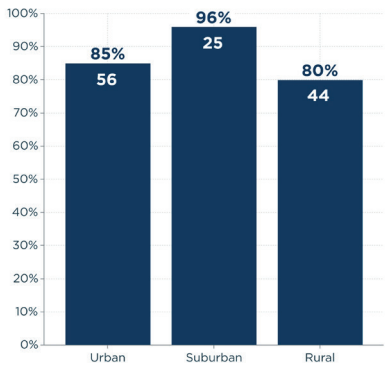
95.1% of NV high school students attend a school that offers foundational computer science, but only **3.5%** of students are **enrolled in a computer science course. 33.6% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

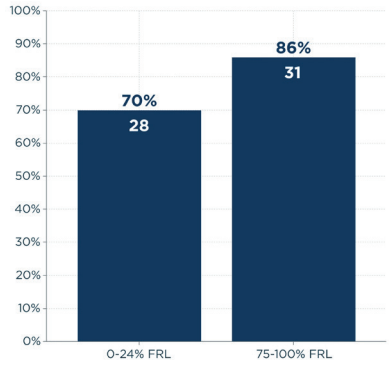
Access by School Year



Access by Geography



Access by % FRL in the School

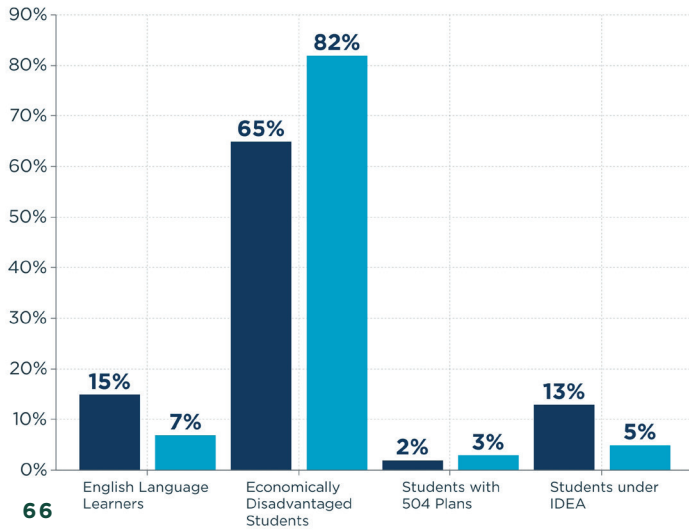


Data provided primarily by the Department of Education, based on 153 schools with high school grades.

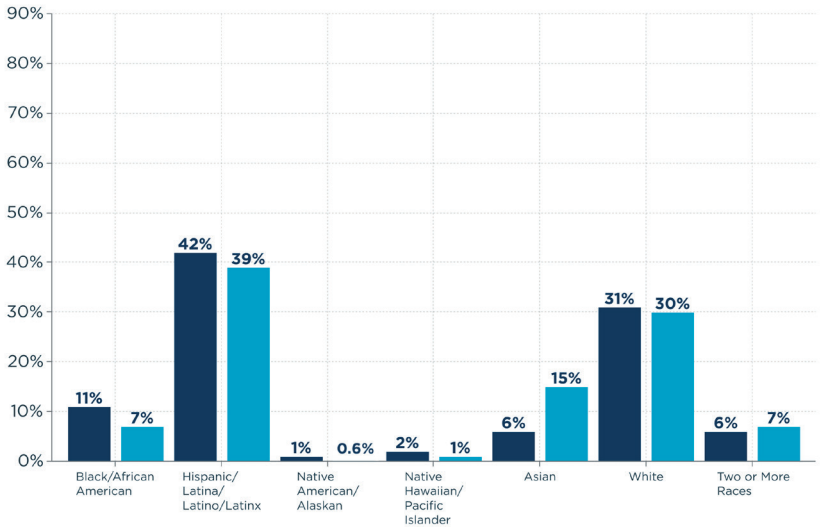
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



New Hampshire

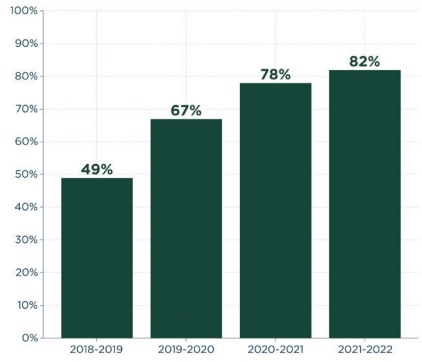
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	NO
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	DISTRICT DECISION	NO

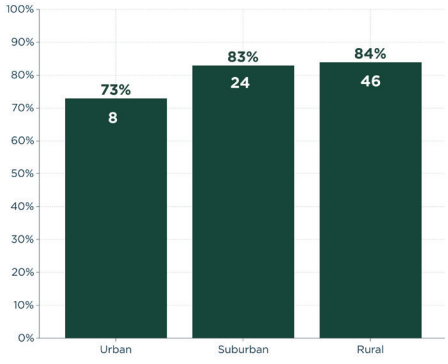
89.1% of NH high school students attend a school that offers foundational computer science. Of the 403 AP CS exams taken in New Hampshire in school year 2020-21, **24% were female and 0.5% identified as another gender.** Course enrollment data for all foundational computer science courses is not available from New Hampshire. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year



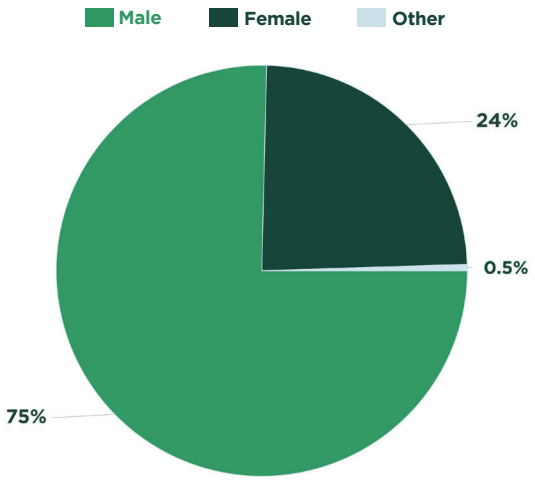
Access by Geography



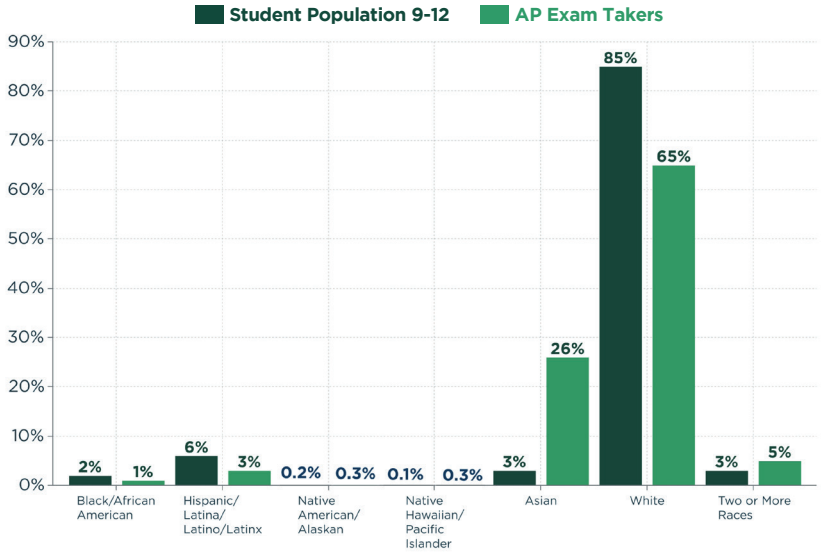
Data provided primarily by school catalogs, based on 95 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



New Jersey

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES

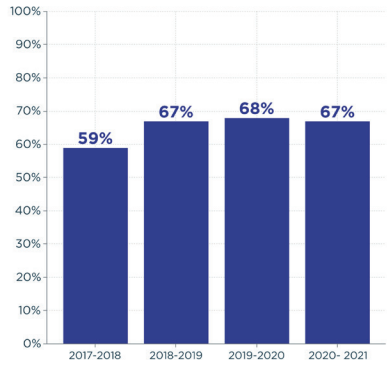
Certification	Preservice	State CS Position
YES	NO	YES

Require HS to Offer	Can Count	Admissions
YES	YES	NO

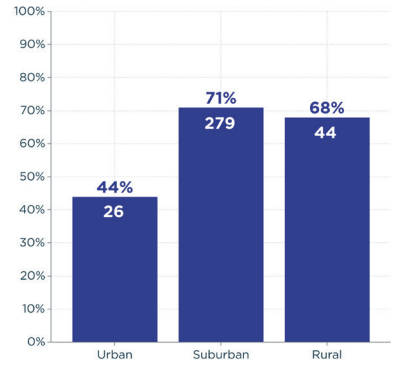
85.2% of NJ high school students attend a school that offers foundational computer science, but only **9.1%** of students are **enrolled in a computer science course. 30.7% of** students enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

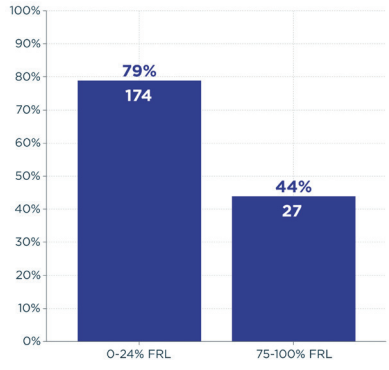
Access by School Year



Access by Geography



Access by % FRL in the School

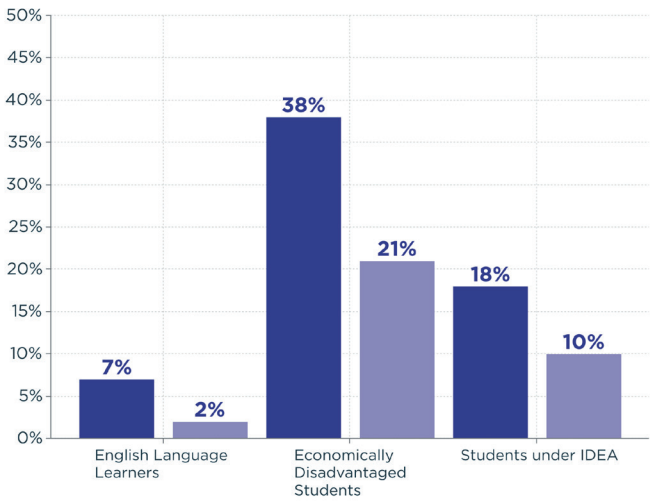


Data provided primarily by the Department of Education, based on 522 schools with high school grades.
State did not collect data on students who identifiy as multi-racial.

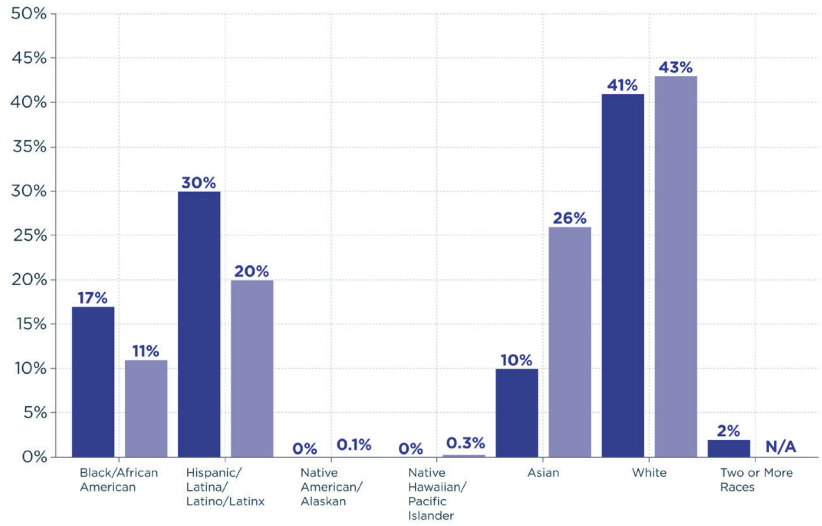
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



New Mexico

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES

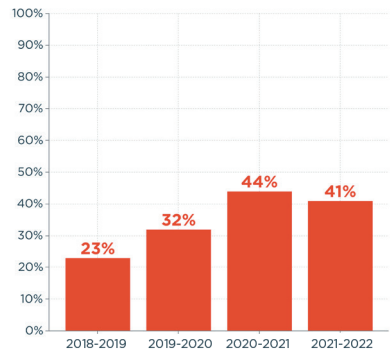
Certification	Preservice	State CS Position
YES	NO	YES

Require HS to Offer	Can Count	Admissions
NO	YES	NO

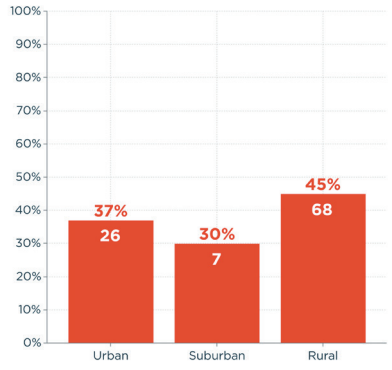
63.1% of NM high school students attend a school that offers foundational computer science, but only **2.5%** of students are **enrolled in a computer science course. 30.0% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

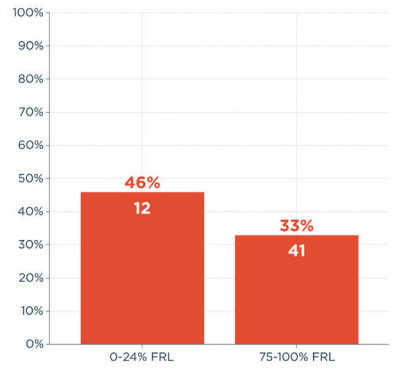
Access by School Year



Access by Geography



Access by % FRL in the School

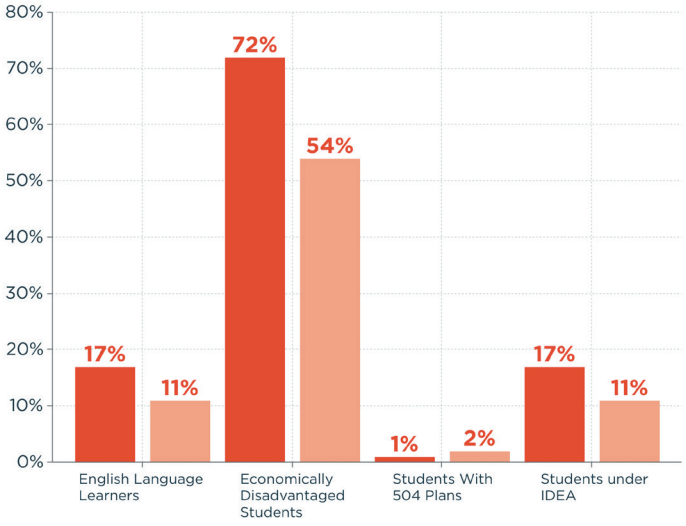


Data provided primarily by the State Education Agency, school catalogs, and school survey data, based on 245 schools with high school grades. Participation data was masked at low counts.

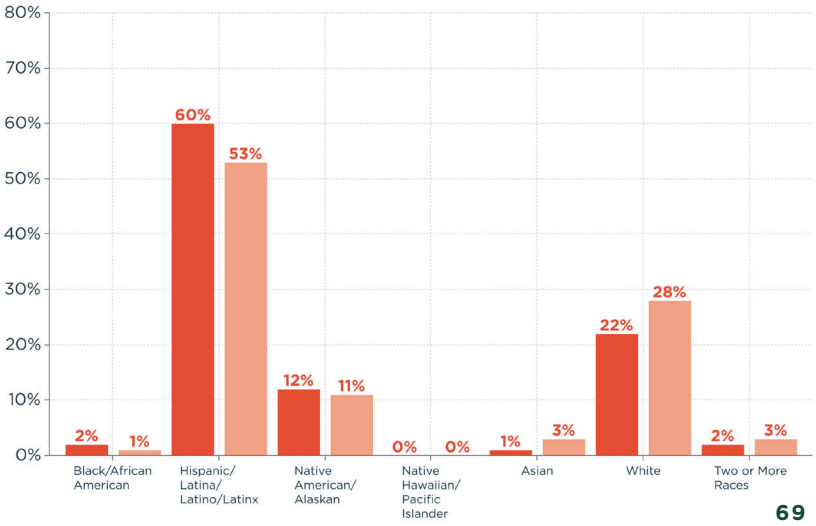
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



New York

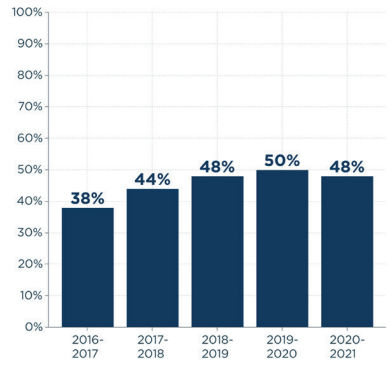
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	NO
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	NO

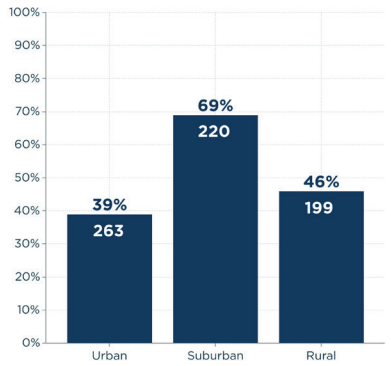
64.0% of NY high school students attend a school that offers foundational computer science, but only **3.4%** of students are **enrolled in a computer science course. 31.2% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

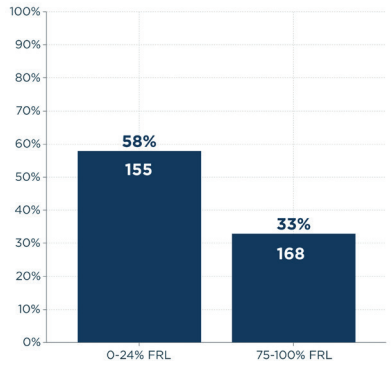
Access by School Year



Access by Geography



Access by % FRL in the School

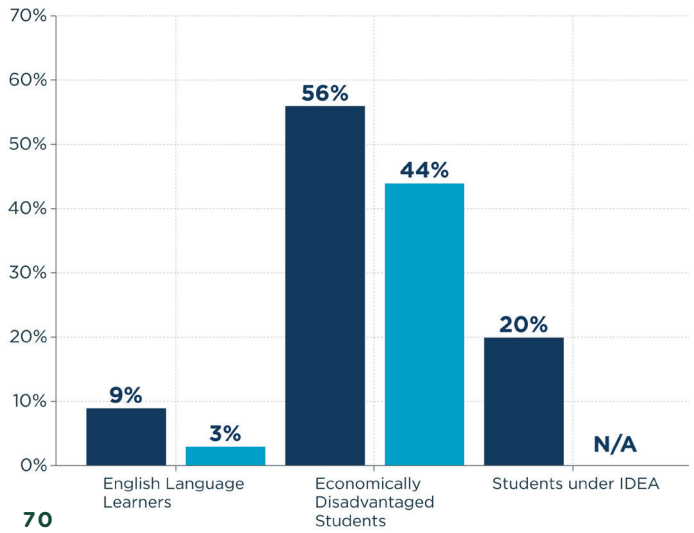


Data provided primarily by the Department of Education and school catalogs, based on 1,426 schools with high school grades. The state reports economically disadvantaged students rather than students who qualify for free and reduced-price meals. If students select "Hispanic or Latino" and a race category, they are counted as Hispanic or Latino, not 2 or more races. Students who select 2 or more races and not Hispanic or Latino are counted as 2 or more races. These students are not included in other categories.

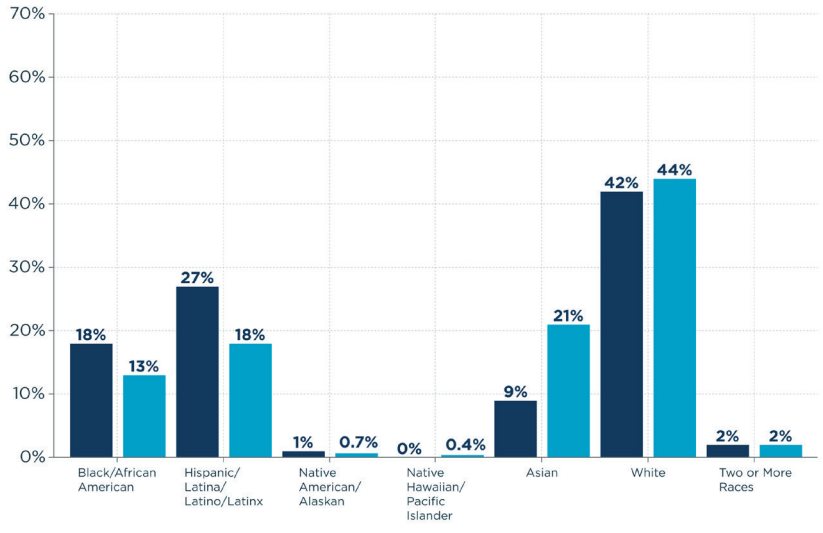
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



North Carolina

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES

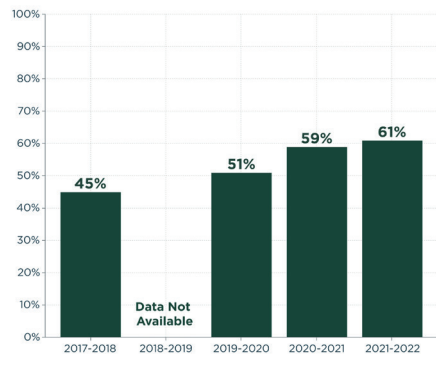
Certification	Preservice	State CS Position
YES	NO	YES

Require HS to Offer	Can Count	Admissions
NO	YES	NO

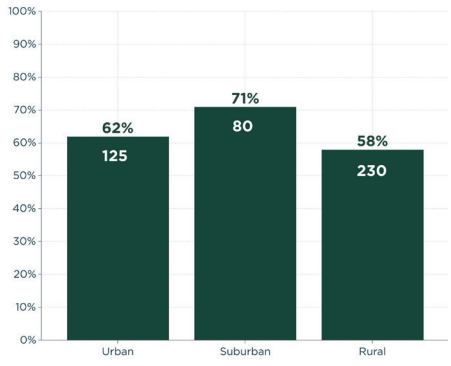
75.6% of NC high school students attend a school that offers foundational computer science. Of the 6,275 AP CS exams taken in North Carolina in school year 2020-21, **31% were female.** Course enrollment data for all foundational computer science courses is not available from North Carolina. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

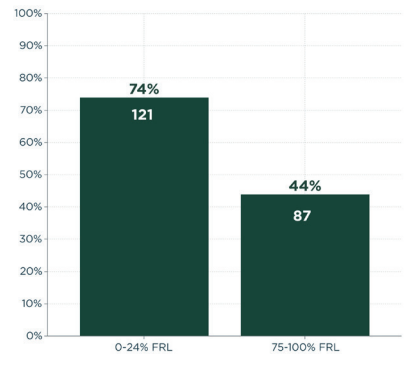
Access by School Year



Access by Geography



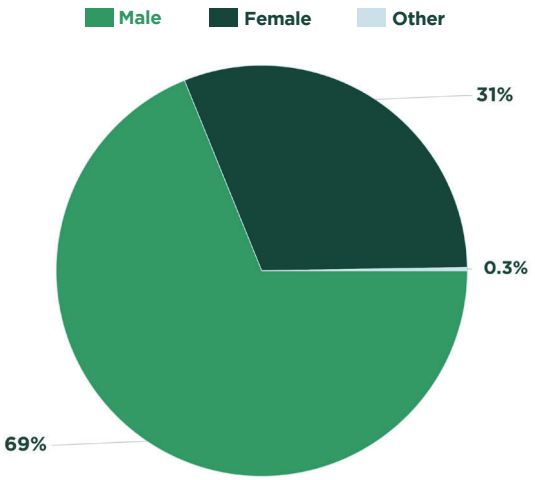
Access by % FRL in the School



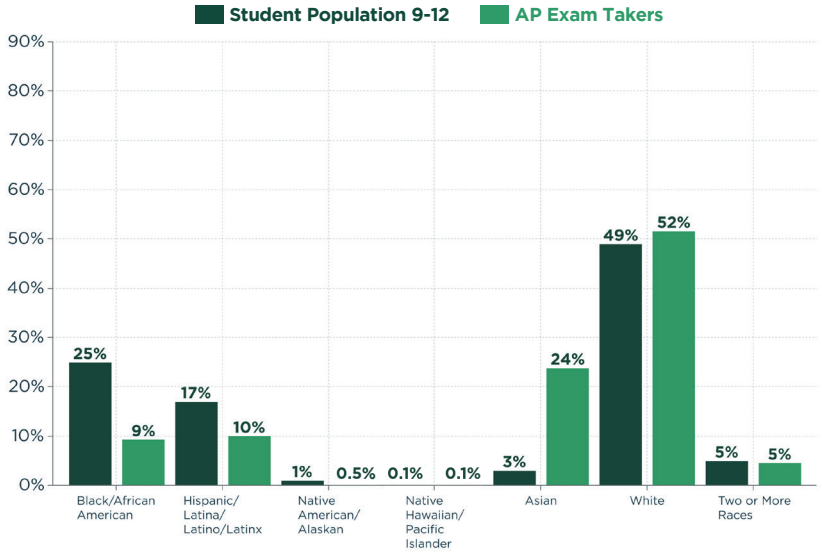
Data provided primarily by the Department of Education, based on 710 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



North Dakota

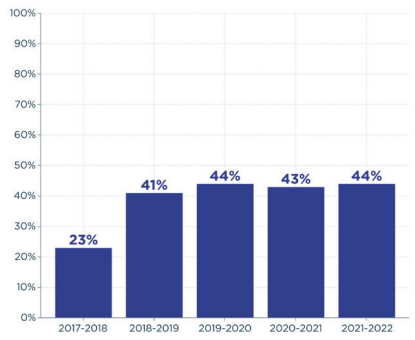
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	NO
Certification	**Preservice**	**State CS Position**
YES	NO	NO
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	NO

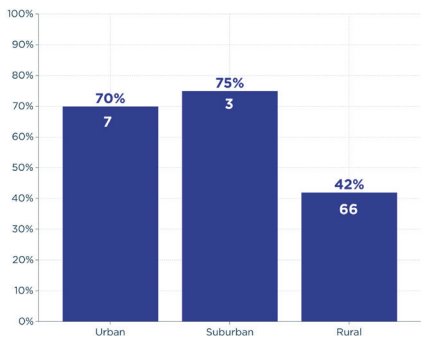
63.8% of ND high school students attend a school that offers foundational computer science. Of the 109 AP CS exams taken in North Dakota in school year 2020-21, **16% were female and 2% identified as another gender.** Course enrollment data for all foundational computer science courses is not available from North Dakota. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

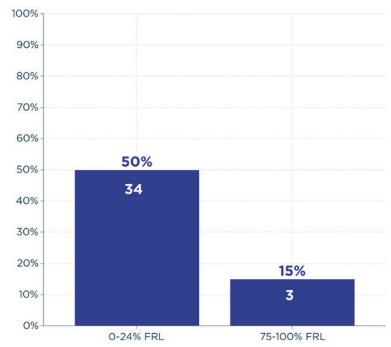
Access by School Year



Access by Geography



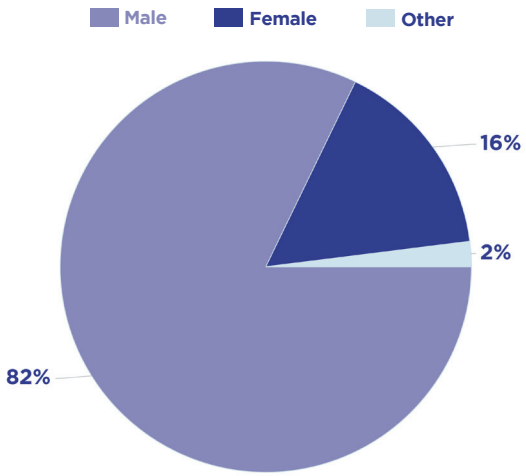
Access by % FRL in the School



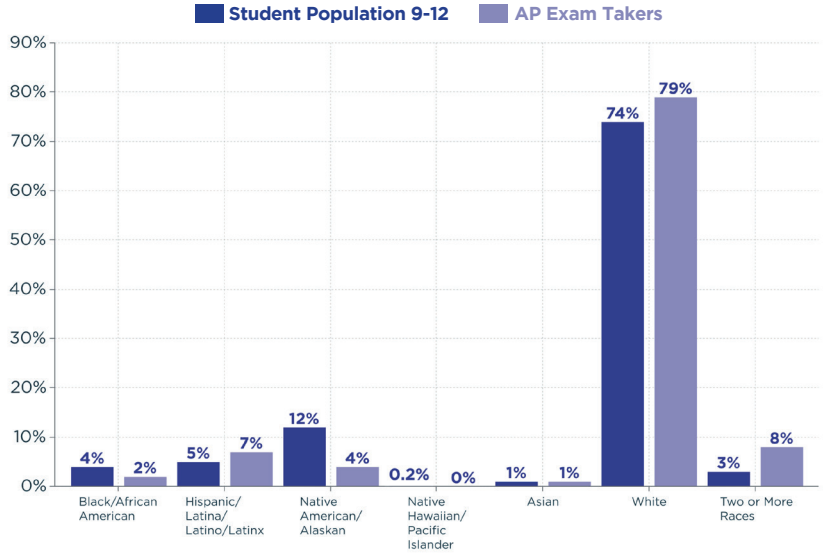
Data provided primarily by the Department of Education, based on 171 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Ohio

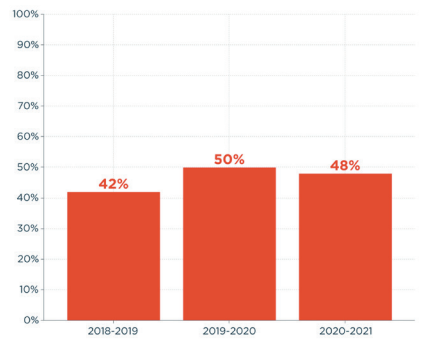
Policies to Make CS Fundamental

State Plan	Standards	Funding
IN PROGRESS	YES	NO HISTORIC YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	YES

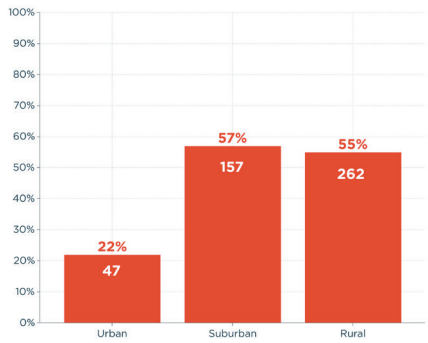
53.4% of OH high school students attend a school that offers foundational computer science. Of the 3,755 AP CS exams taken in Ohio in school year 2020-21, **27% were female.** Course enrollment data for all foundational computer science courses is not available from Ohio. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

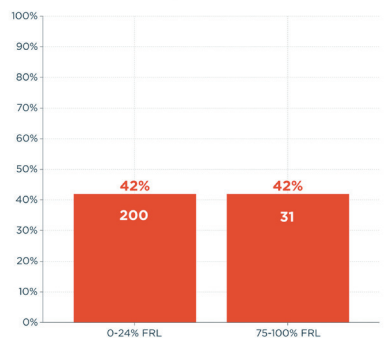
Access by School Year



Access by Geography



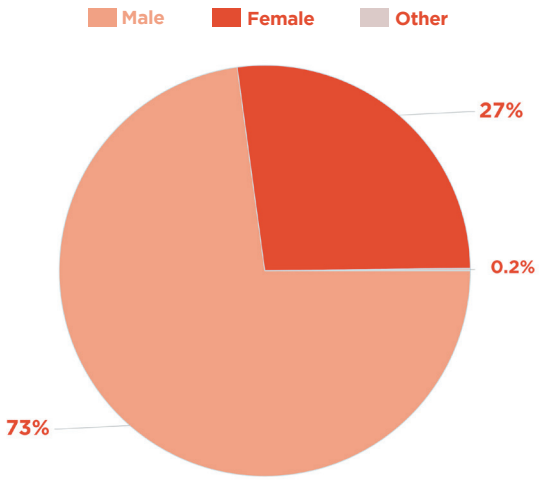
Access by % FRL in the School



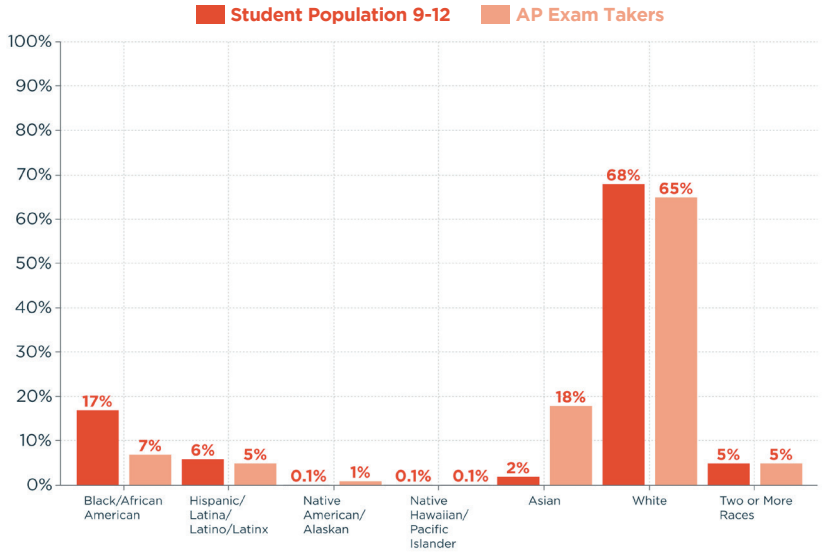
Data provided primarily by the Department of Education and school catalogs, based on 979 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Oklahoma

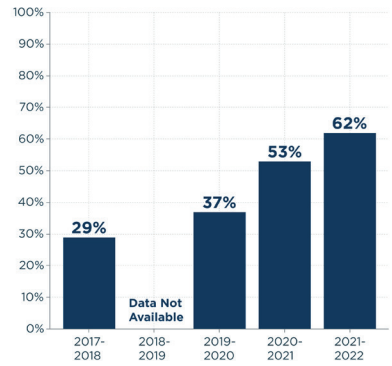
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	NO
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

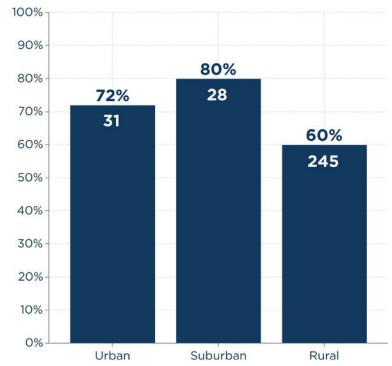
81.5% of OK high school students attend a school that offers foundational computer science, but only **4.7%** of students are **enrolled in a computer science course. 36.8% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

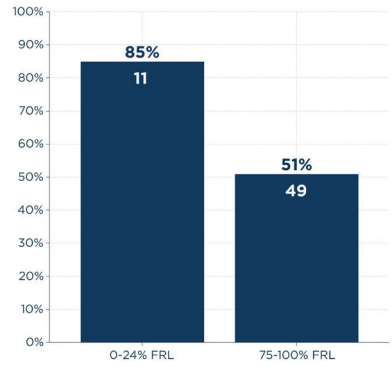
Access by School Year



Access by Geography



Access by % FRL in the School

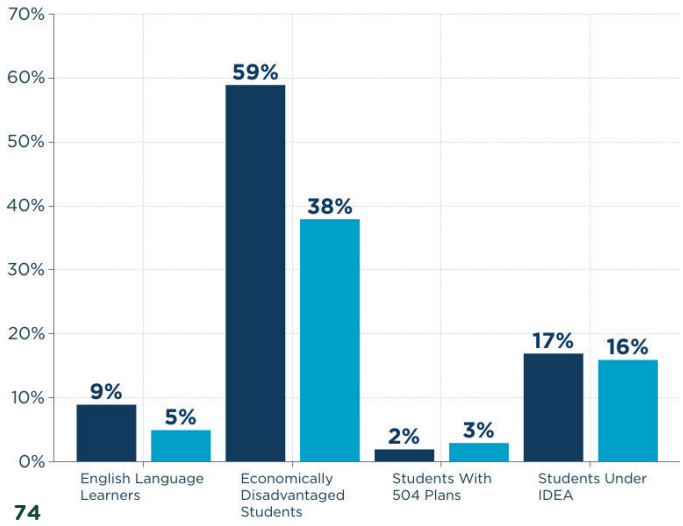


Data provided primarily by the Department of Education and school catalogs, based on 490 schools with high school grades. Participation data was masked at low counts.

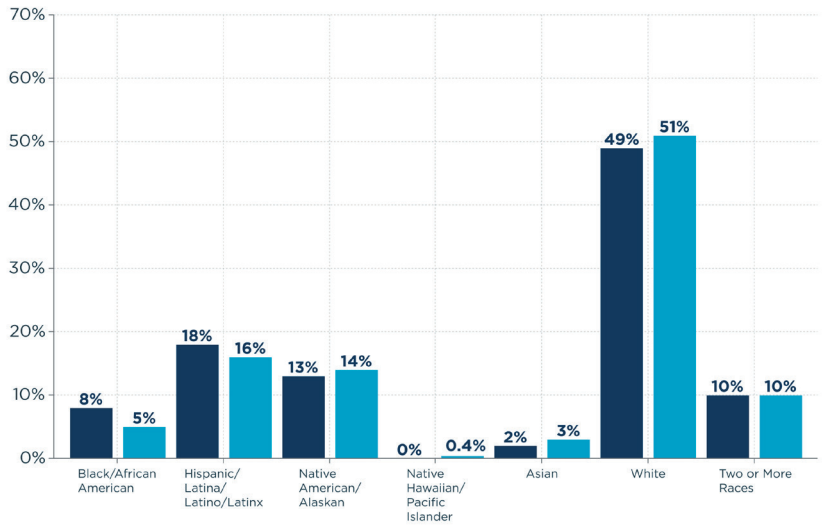
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Oregon

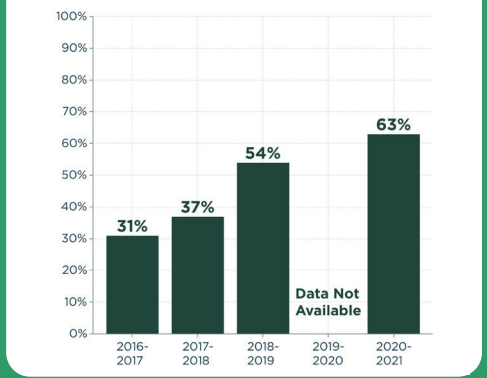
Policies to Make CS Fundamental

State Plan	Standards	Funding
IN PROGRESS	⊗ NO	⊗ NO
Certification	**Preservice**	**State CS Position**
⊗ NO	⊗ NO	⊗ NO
Require HS to Offer	**Can Count**	**Admissions**
⊗ NO	DISTRICT DECISION	⊗ NO

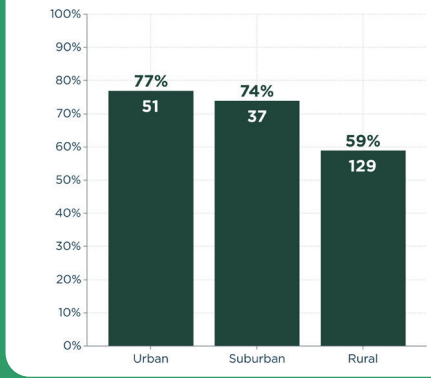
86.6% of OR high school students attend a school that offers foundational computer science, but only **7.2%** of students are **enrolled in a computer science course. 24.2% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

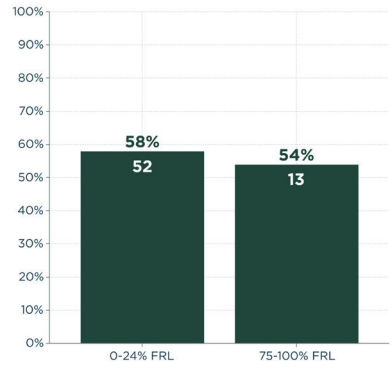
Access by School Year



Access by Geography



Access by % FRL in the School

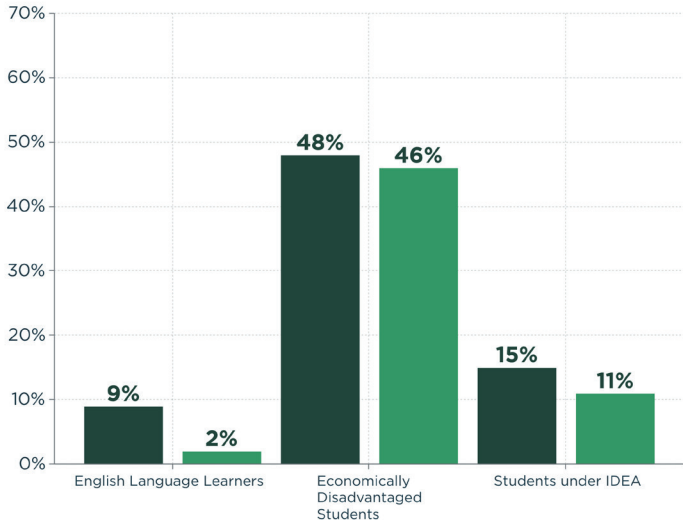


Data provided primarily by the Department of Education, based on 346 schools with high school grades. The state reports economically disadvantaged students rather than students who qualify for free and reduced-price meals. If students select "Hispanic or Latino" and a race category, they are counted as Hispanic or Latino, not 2 or more races. Students who select 2 or more races and not Hispanic or Latino are counted as 2 or more races. These students are not included in other categories.

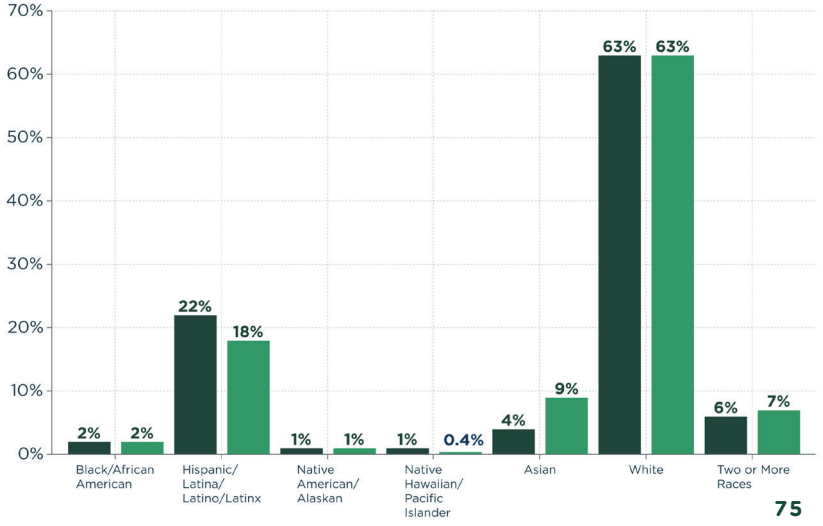
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Pennsylvania

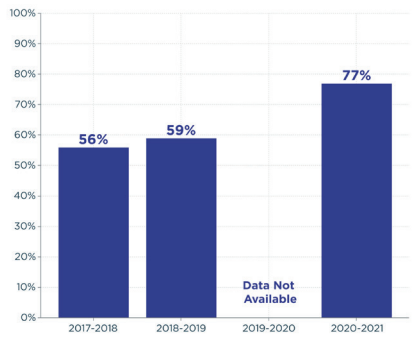
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	NO

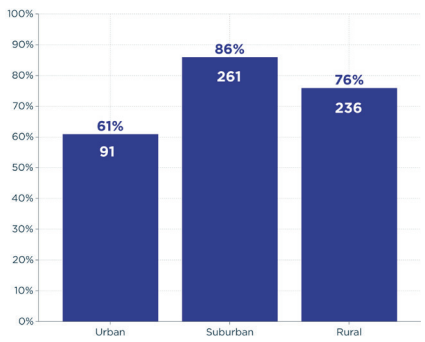
87.9% of PA high school students attend a school that offers foundational computer science. Of the 6,106 AP CS exams taken in Pennsylvania in school year 2020-21, **27% were female.** Course enrollment data for all foundational computer science courses is not available from Pennsylvania. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

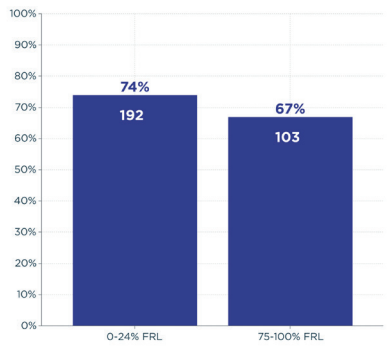
Access by School Year



Access by Geography



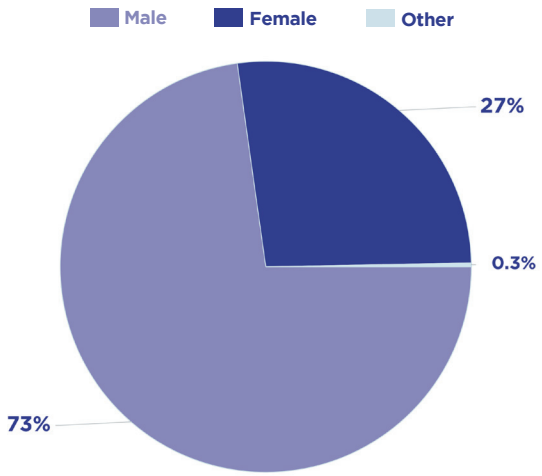
Access by % FRL in the School



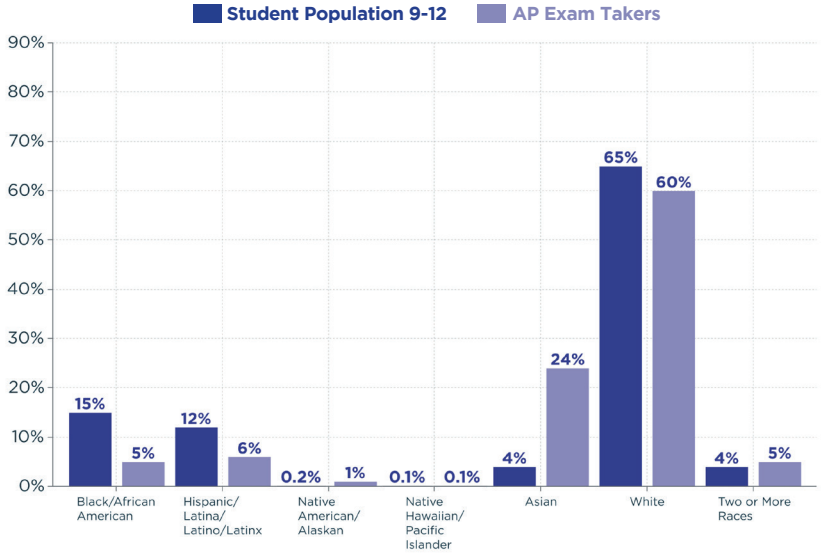
Data provided primarily by the Department of Education, based on 765 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Rhode Island

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES HISTORIC YES

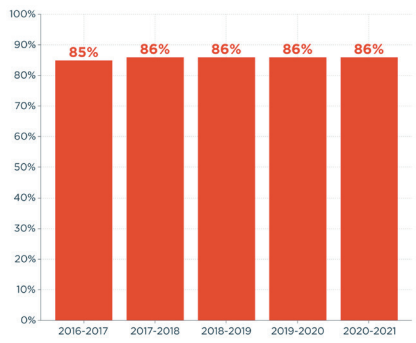
Certification	Preservice	State CS Position
YES	YES	YES

Require HS to Offer	Can Count	Admissions
NO	YES	NO

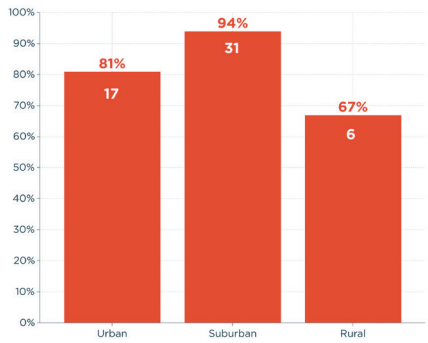
93.3% of RI high school students attend a school that offers foundational computer science. Of the 617 AP CS exams taken in Rhode Island in school year 2020-21, **31% were female.** Course enrollment data for all foundational computer science courses is not available from Rhode Island. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

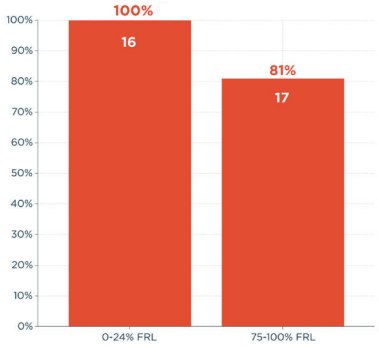
Access by School Year



Access by Geography



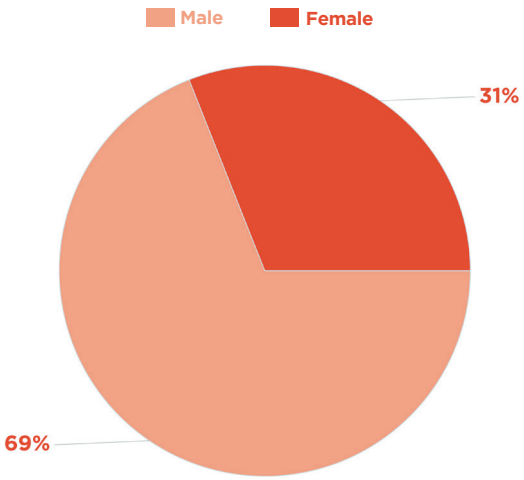
Access by % FRL in the School



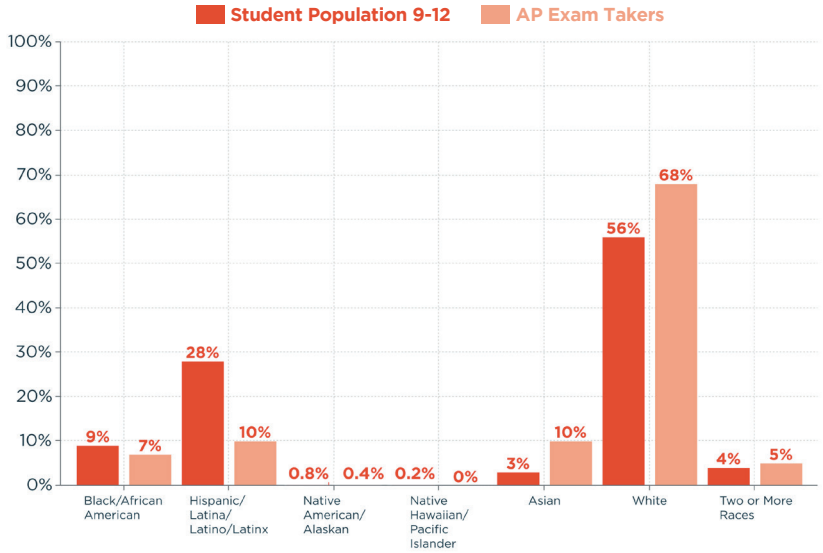
Data provided primarily by the Department of Education, based on 63 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



South Carolina

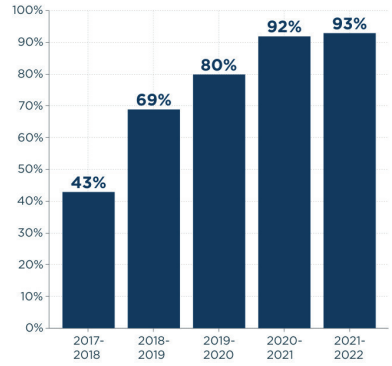
Policies to Make CS Fundamental

State Plan	Standards	Funding
IN PROGRESS	✓ YES	✓ YES
Certification	**Preservice**	**State CS Position**
✓ YES	✗ NO	✓ YES
Require HS to Offer	**Can Count**	**Admissions**
✓ YES	GRAD REQUIREMENT	✓ YES

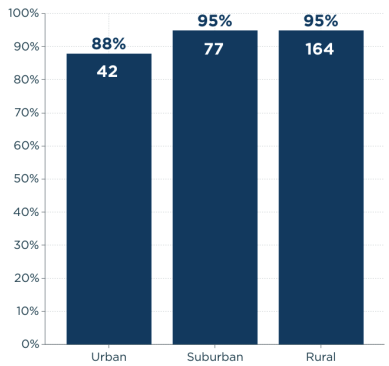
95.8% of SC high school students attend a school that offers foundational computer science, and **25.7%** of students are **enrolled in a computer science course. 46.9% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

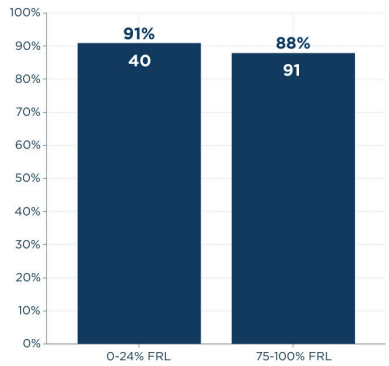
Access by School Year



Access by Geography



Access by % FRL in the School

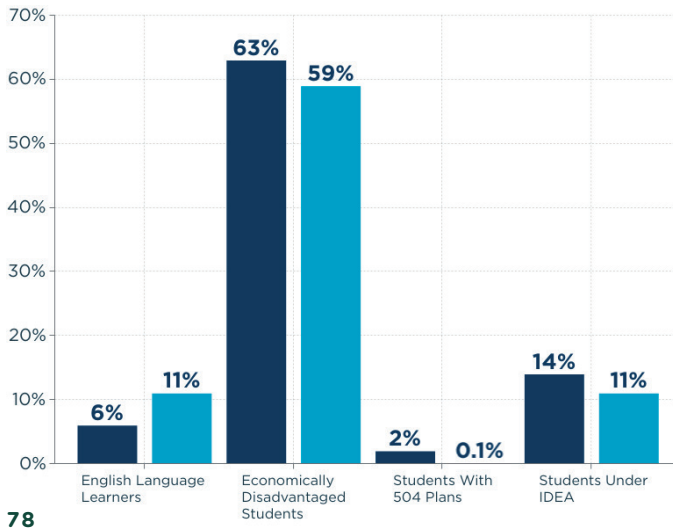


Data provided primarily by the Department of Education and school catalogs, based on 310 schools with high school grades. Some students may be represented in multiple race/ethnicity columns, as the state reports race and ethnicity separately.

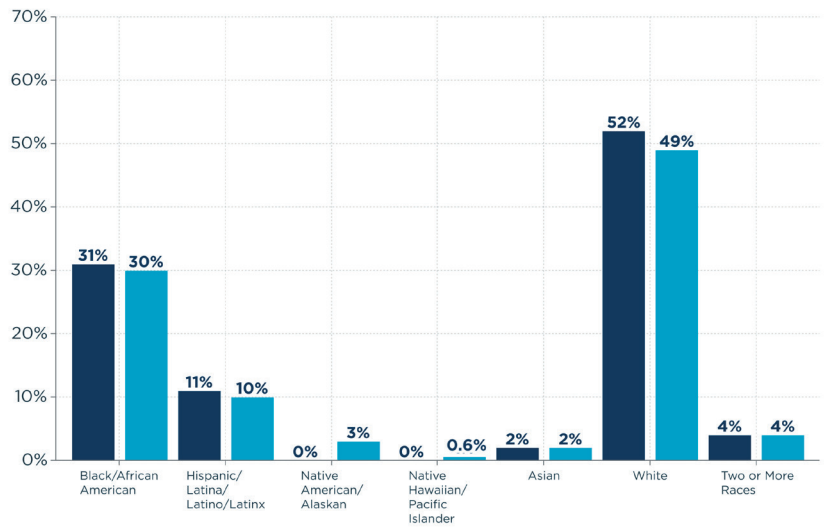
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



South Dakota

Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	NO	NO

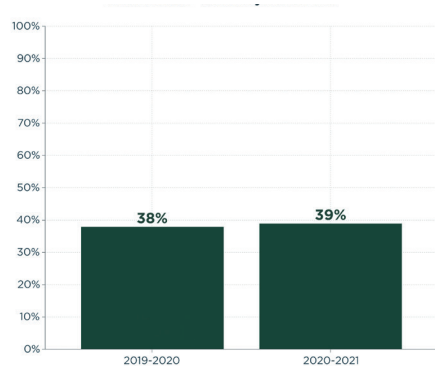
Certification	Preservice	State CS Position
YES	NO	NO

Require HS to Offer	Count (Grad Reqt)	Admissions
NO	YES	NO

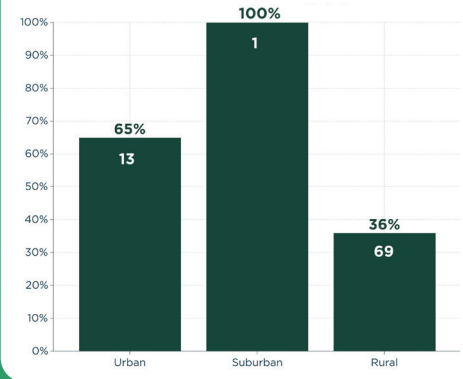
79.2% of SD high school students attend a school that offers foundational computer science. Of the 26 AP CS exams taken in South Dakota in school year 2020-21, **15% were female.** Course enrollment data for all foundational computer science courses is not available from South Dakota. Nationally, we know that participation in all foundational computer science courses is broader than AP participation.

Percentage of Public High Schools Offering Foundational Computer Science

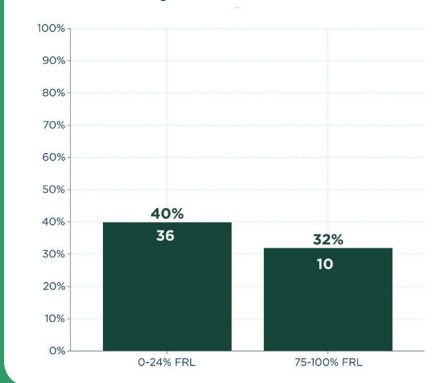
Access by School Year



Access by Geography



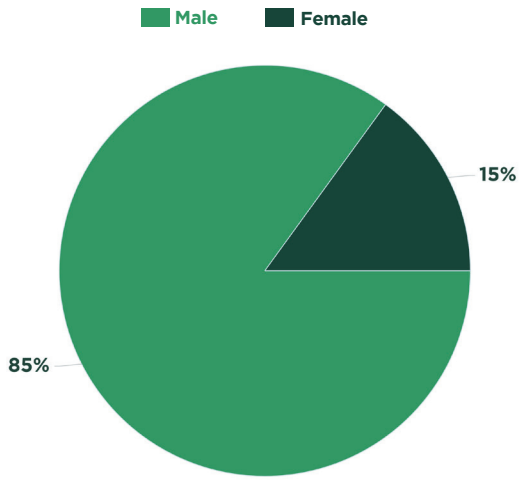
Access by % FRL in the School



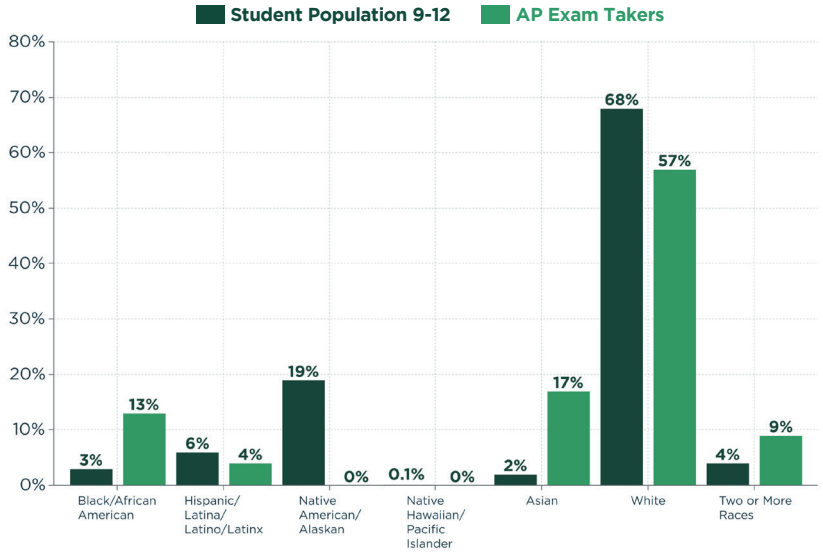
Data provided primarily by the Department of Education and school catalogs, based on 214 schools with high school grades. The state reports low-income students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

Participation in AP Computer Science Exams by Demographic

Gender



Race/Ethnicity



Tennessee

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES

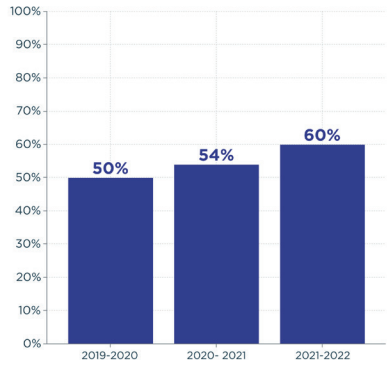
Certification	Preservice	State CS Position
YES	YES	YES

Require HS to Offer	Can Count	Admissions
YES	GRAD REQUIREMENT	NO

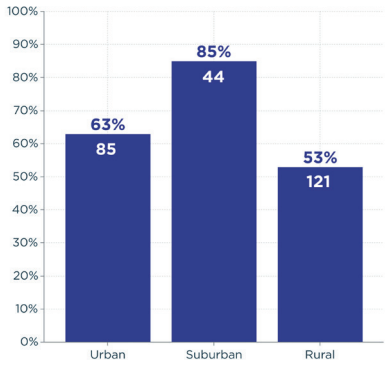
75.5% of TN high school students attend a school that offers foundational computer science, but only **4.3%** of students are **enrolled in a computer science course.** **28.7%** of students enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

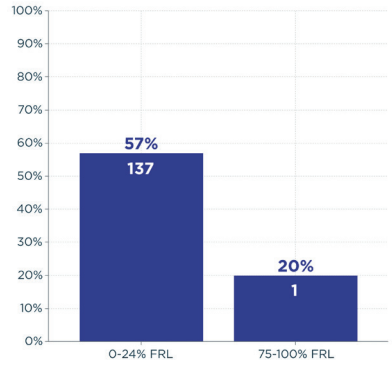
Access by School Year



Access by Geography



Access by % FRL in the School

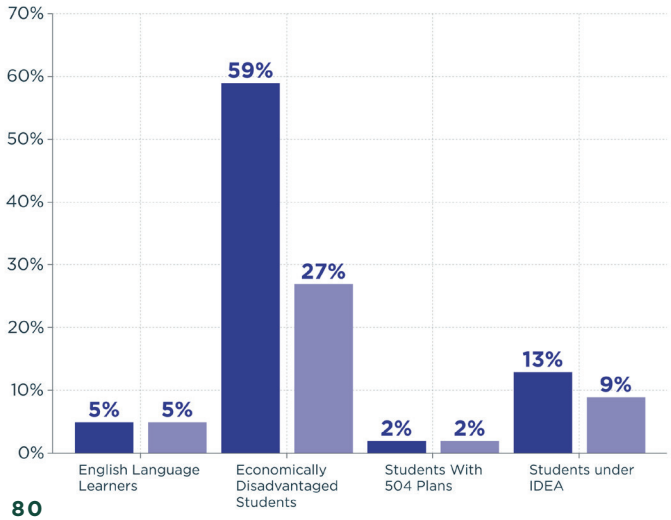


Data provided primarily by the Department of Education, based on 427 schools with high school grades. Some students may be represented in multiple race/ethnicity columns, as the state reports race and ethnicity separately. Participation data was masked at low counts.

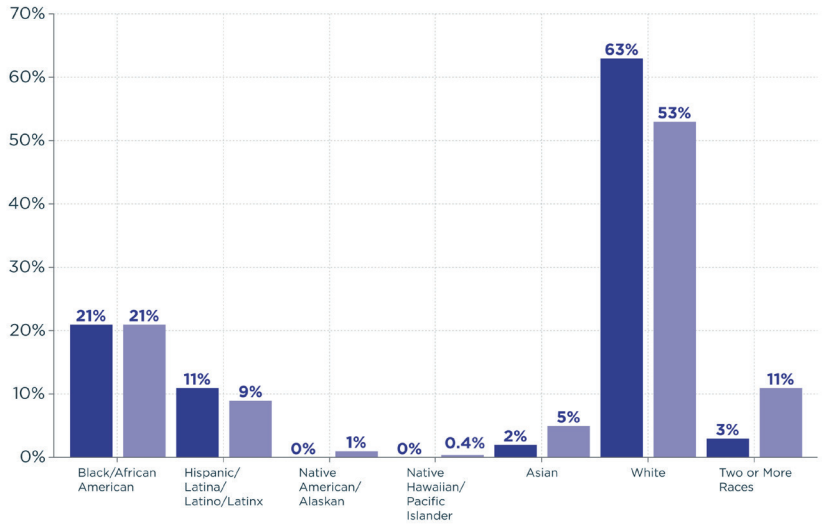
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Texas

Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES

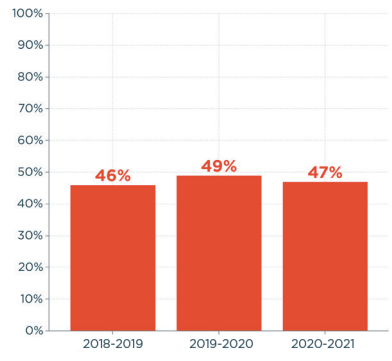
Certification	Preservice	State CS Position
YES	YES	NO

Require HS to Offer	Can Count	Admissions
YES	YES	YES

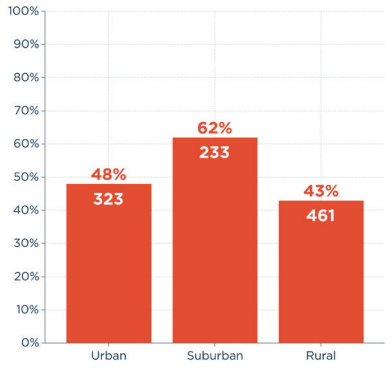
73.6% of TX high school students attend a school that offers foundational computer science, but only **6.0%** of students are **enrolled in a computer science course. 27.3% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

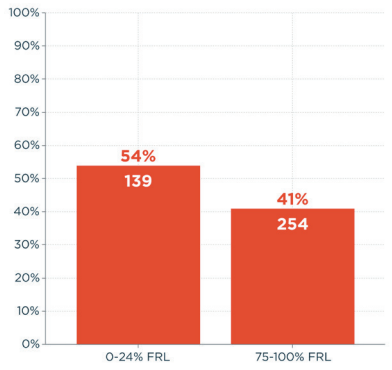
Access by School Year



Access by Geography



Access by % FRL in the School

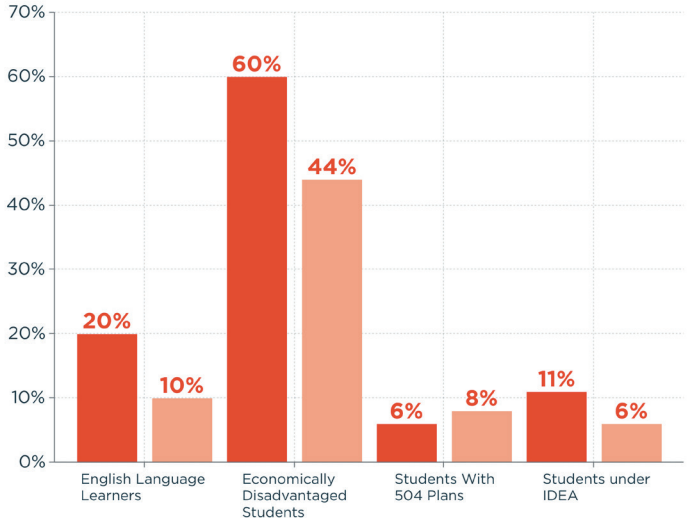


Data provided primarily by the Department of Education and the University of Texas at Austin, based on 2,150 schools with high school grades. Participation data was masked at low counts.

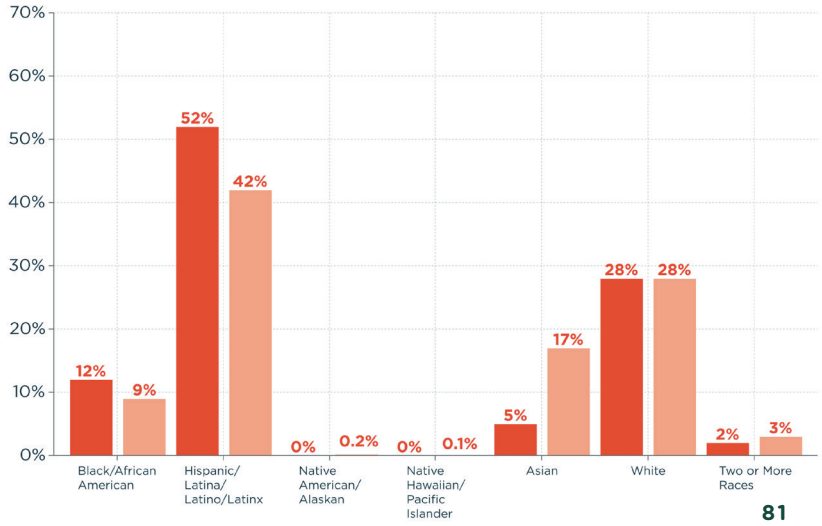
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Utah

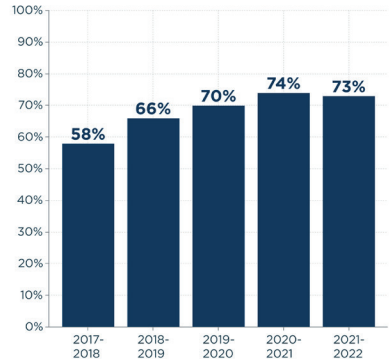
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	NO

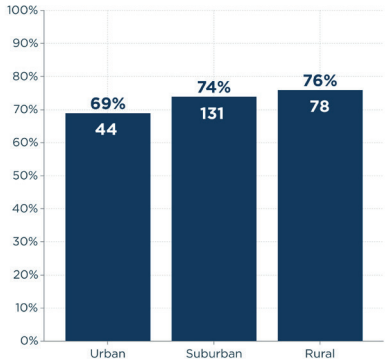
90.9% of UT high school students attend a school that offers foundational computer science, but only **9.9%** of students are **enrolled in a computer science course. 31.7% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

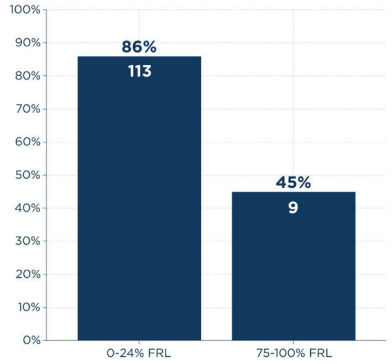
Access by School Year



Access by Geography



Access by % FRL in the School

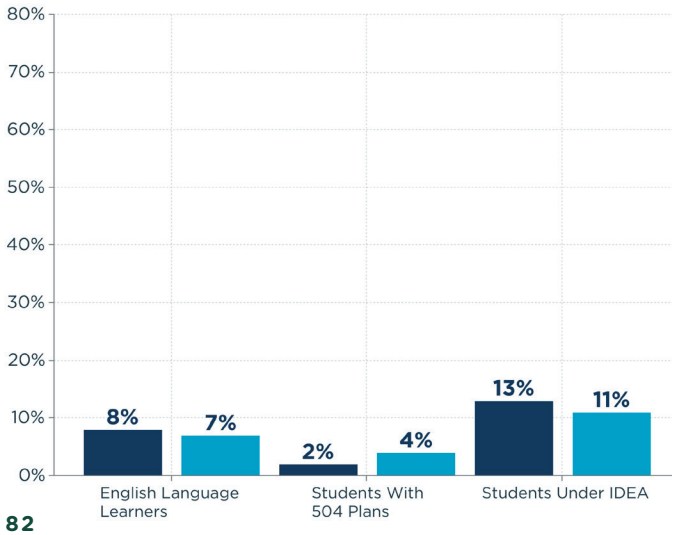


Data provided primarily by the Department of Education, based on 349 schools with high school grades. The state reports economically disadvantaged students rather than students who qualify for free and reduced-price meals.

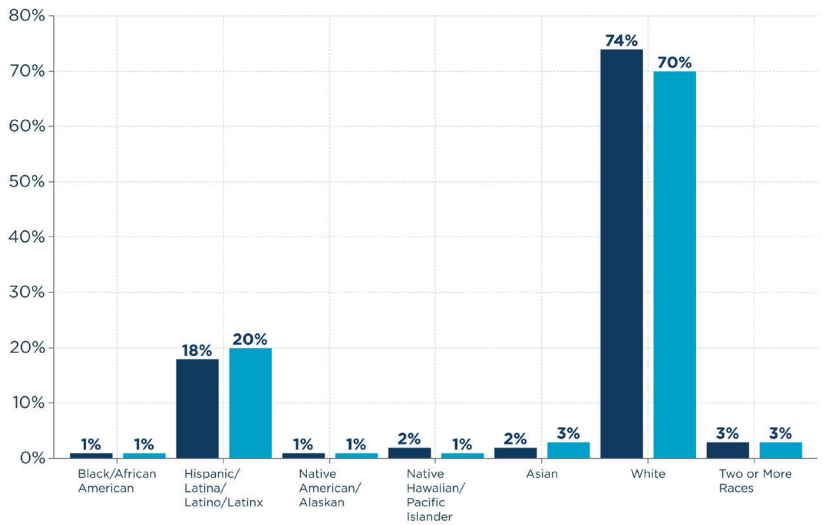
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Vermont

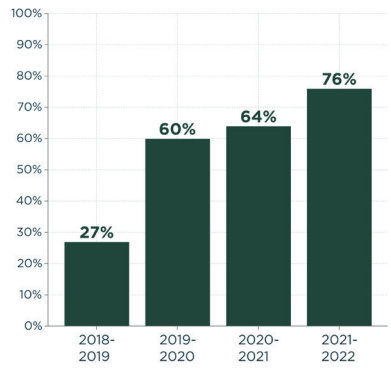
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	NO	NO
Certification	**Preservice**	**State CS Position**
YES	YES	NO
Require HS to Offer	**Can Count**	**Admissions**
NO	DISTRICT DECISION	NO

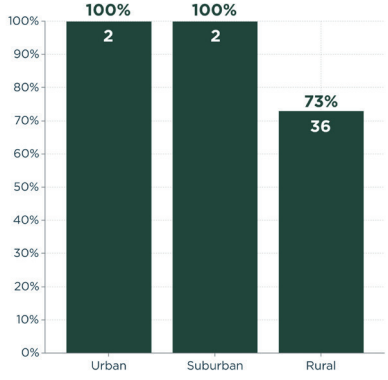
83.2% of VT high school students attend a school that offers foundational computer science, but only **3.5%** of students are **enrolled in a computer science course.** **29.5% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year



Access by Geography

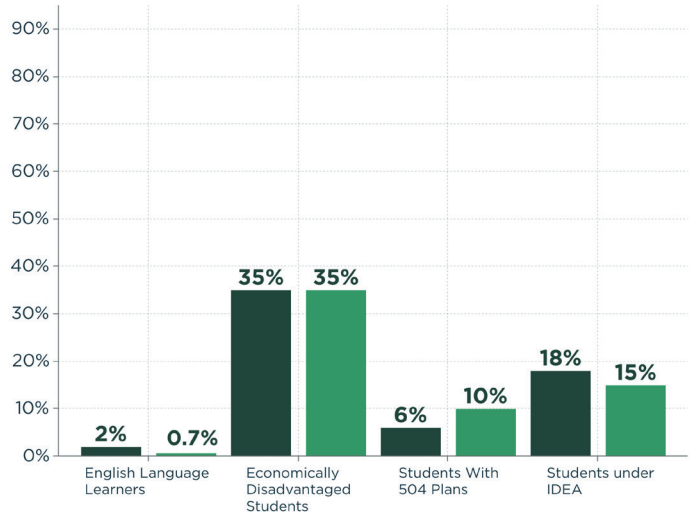


Data provided primarily by the Department of Education, based on 55 schools with high school grades.

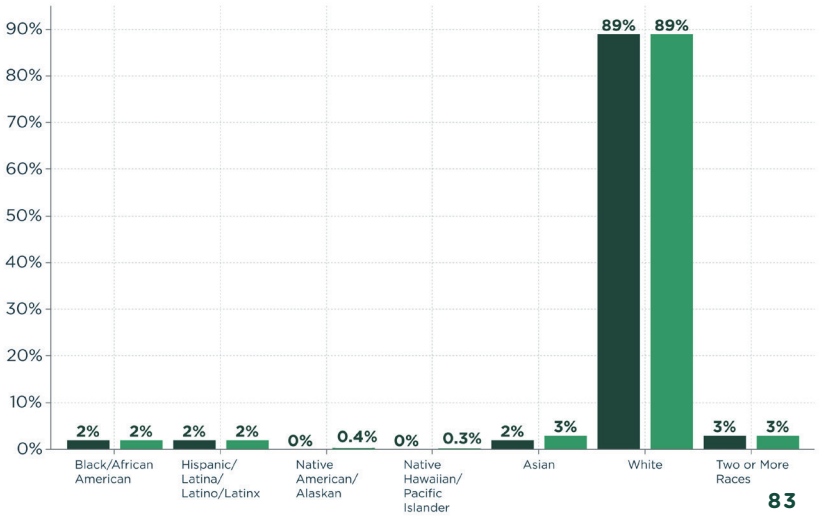
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Virginia

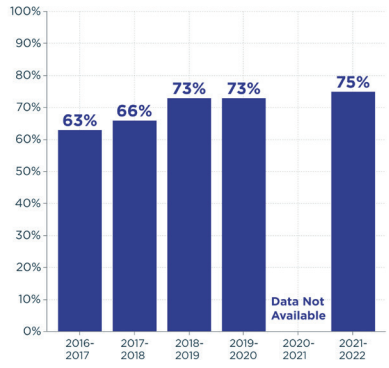
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	YES
Certification	**Preservice**	**State CS Position**
YES	YES	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	NO

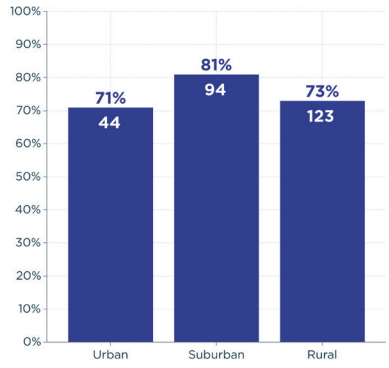
87.3% of VA high school students attend a school that offers foundational computer science, but only **6.3%** of students are **enrolled in a computer science course. 32.4% of** students enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

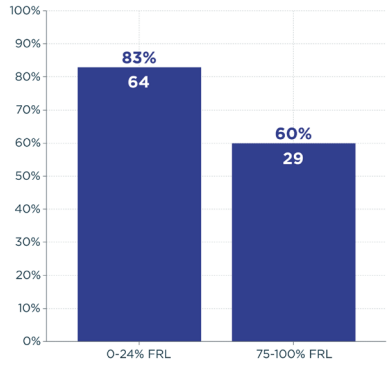
Access by School Year



Access by Geography



Access by % FRL in the School

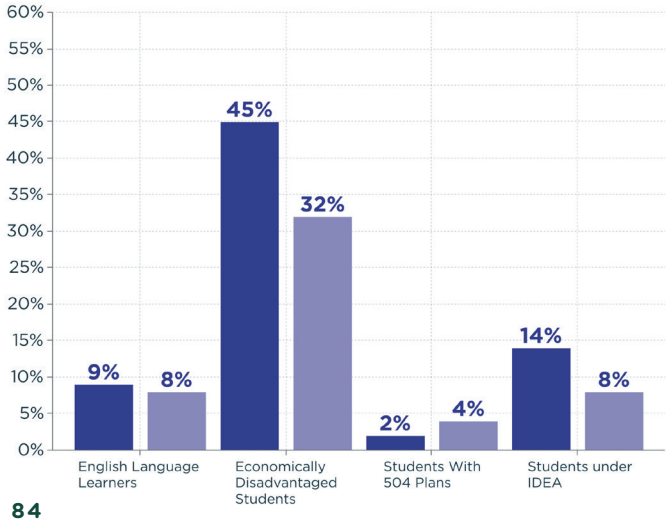


Data provided primarily by the Department of Educationand school catalogs, based on 348 schools with high school grades.

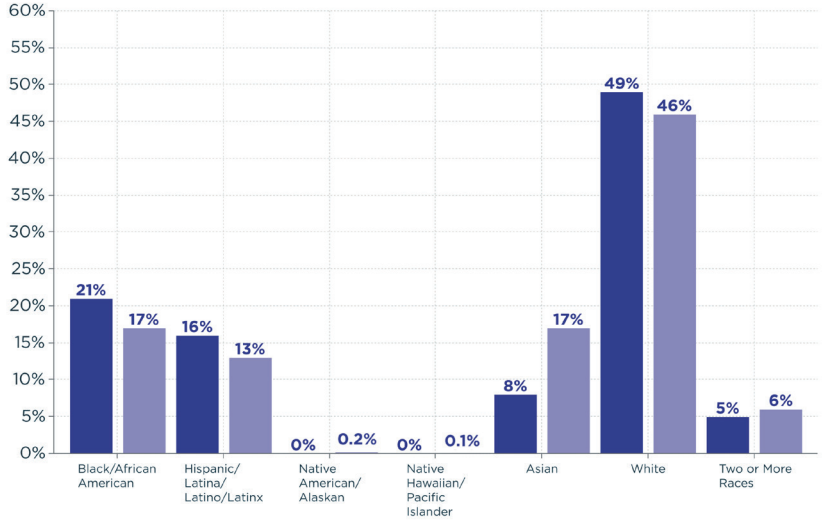
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Washington

Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES

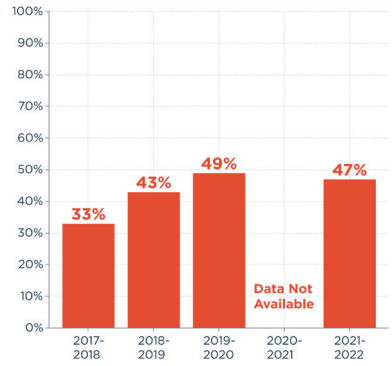
Certification	Preservice	State CS Position
YES	YES	YES

Require HS to Offer	Can Count	Admissions
YES	YES	YES

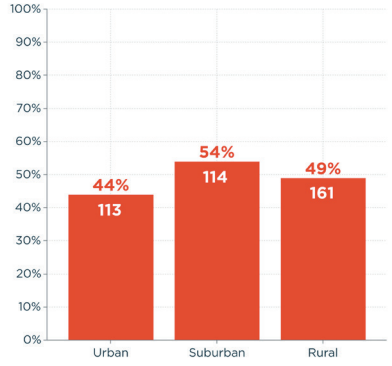
82.8% of WA high school students attend a school that offers foundational computer science, but only **4.0%** of students are **enrolled in a computer science course. 25.5% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

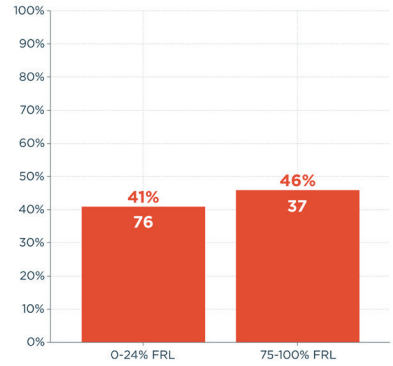
Access by School Year



Access by Geography



Access by % FRL in the School

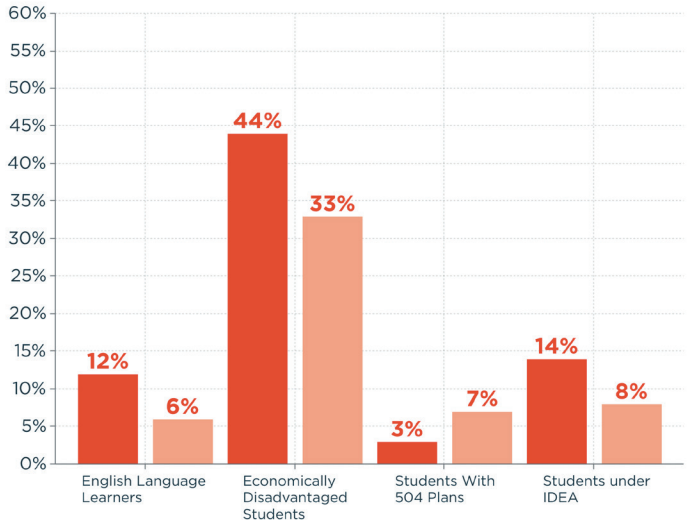


Data provided primarily by the Department of Education and school catalogs, based on 834 schools with high school grades. Participation data is from the 2019-20 school year, and access report data is from the 2020-21 school year.

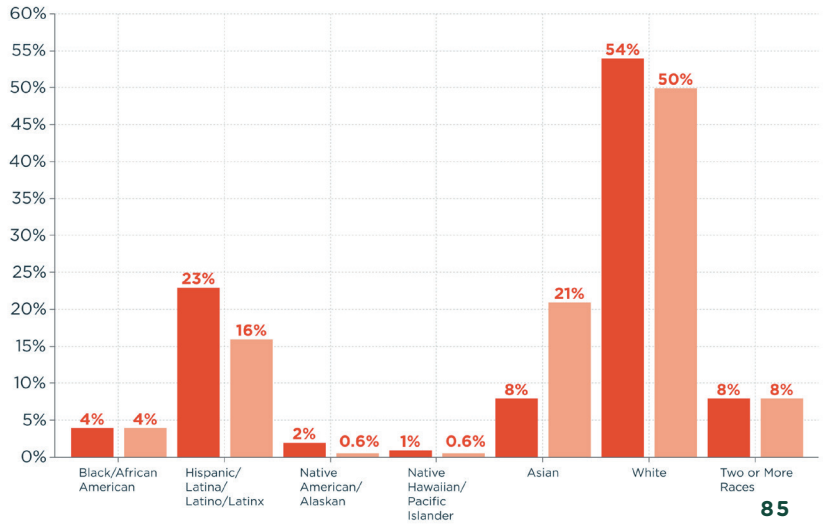
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



West Virginia

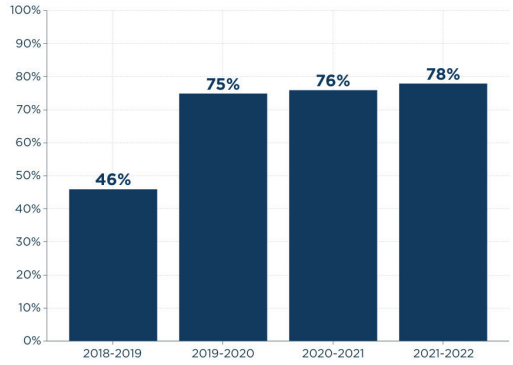
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	YES
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	NO

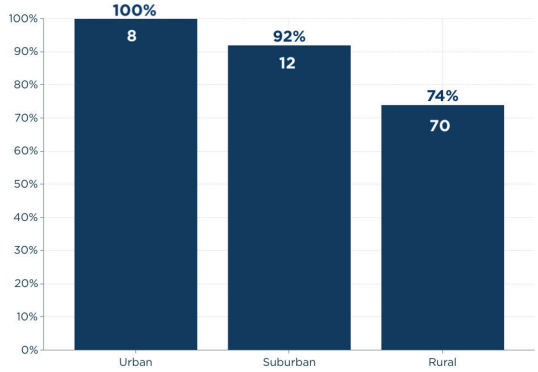
86.0% of WV high school students attend a school that offers foundational computer science, but only **5.4%** of students are **enrolled in a computer science course.** **34.2%** of students enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year



Access by Geography

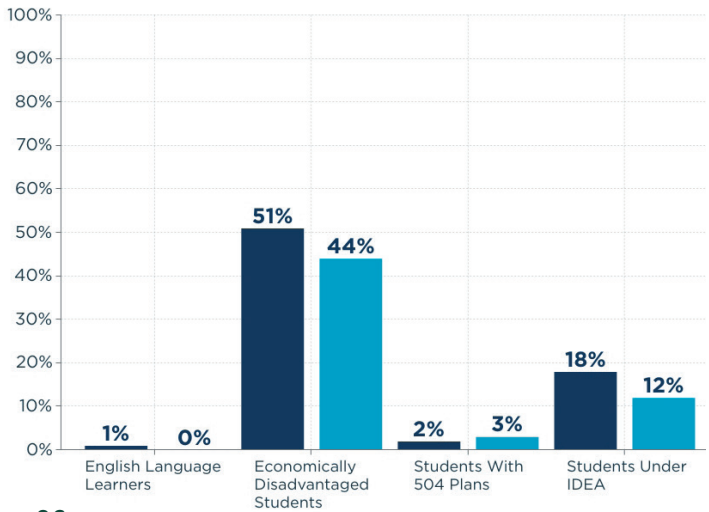


Data provided primarily by the Department of Education, based on 115 schools with high school grades. The state reports economically disadvantaged students rather than students who qualify for free and reduced-price meals. Participation data was masked at low counts.

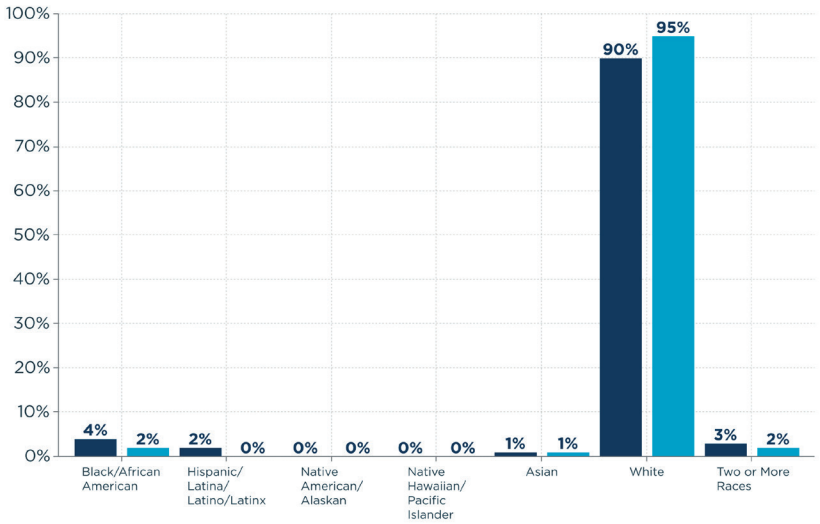
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Wisconsin

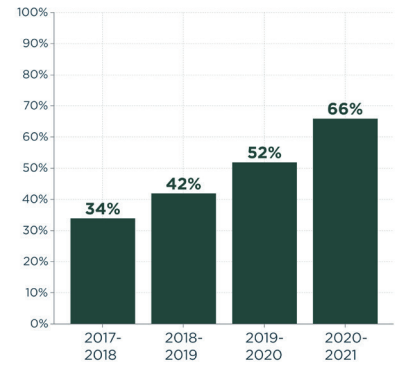
Policies to Make CS Fundamental

State Plan	Standards	Funding
NO	YES	NO
Certification	**Preservice**	**State CS Position**
YES	YES	IN PROGRESS
Require HS to Offer	**Can Count**	**Admissions**
NO	YES	NO

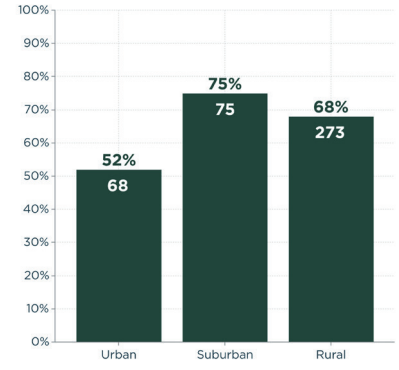
88.6% of WI high school students attend a school that offers foundational computer science, but only **4.6%** of students are **enrolled in a computer science course.** **22.7% of students** enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

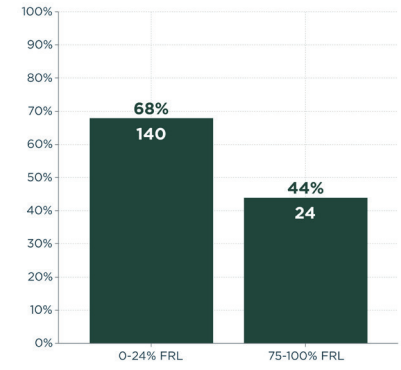
Access by School Year



Access by Geography



Access by % FRL in the School

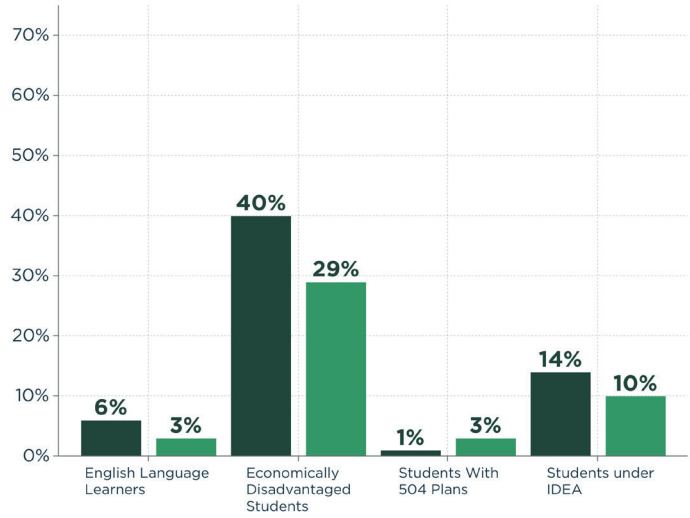


Data provided primarily by the Department of Education, based on 637 schools with high school grades. Asian and Native Hawaiian/Native Hawaiian/Pacific Islander students are reported under Asian. Participation data was masked at low counts.

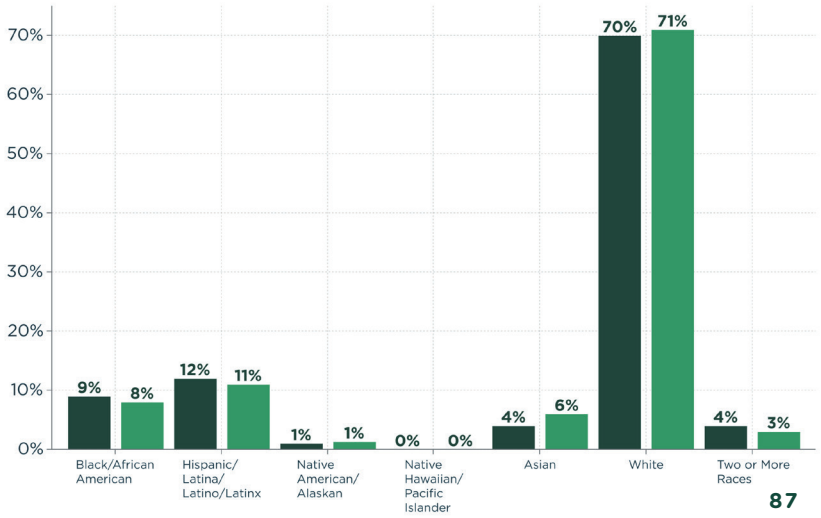
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 | Participation in Foundational Courses

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Wyoming

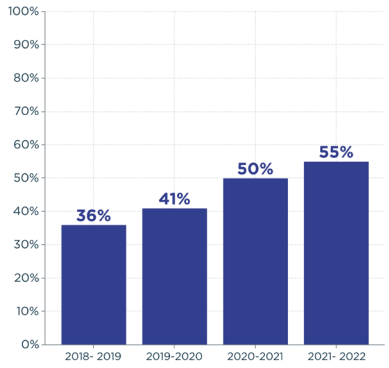
Policies to Make CS Fundamental

State Plan	Standards	Funding
YES	YES	NO
Certification	**Preservice**	**State CS Position**
YES	NO	YES
Require HS to Offer	**Can Count**	**Admissions**
YES	YES	YES

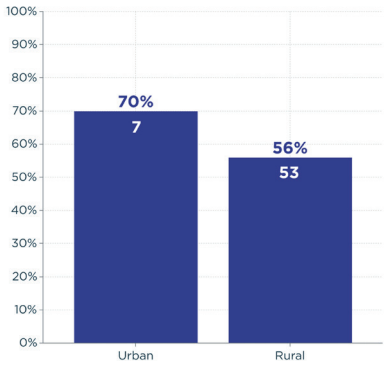
79.3% of WY high school students attend a school that offers foundational computer science, but only **3.7%** of students are **enrolled in a computer science course.** **24.8%** of students enrolled in a computer science course are **female.**

Percentage of Public High Schools Offering Foundational Computer Science

Access by School Year



Access by Geography

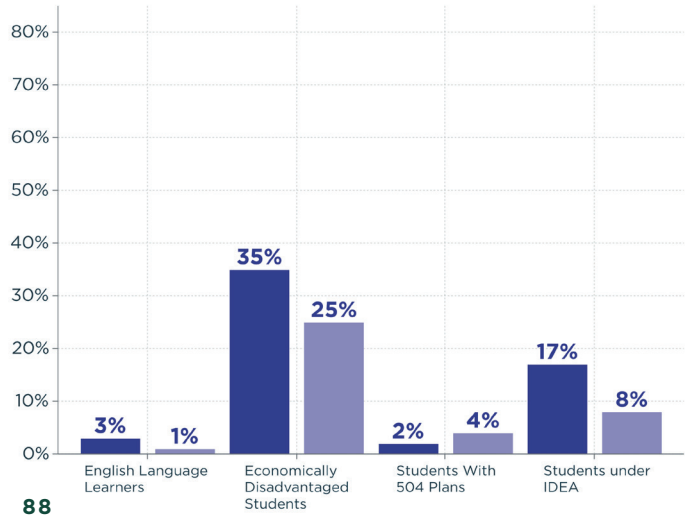


Data provided primarily by the Department of Education, based on 111 schools with high school grades.

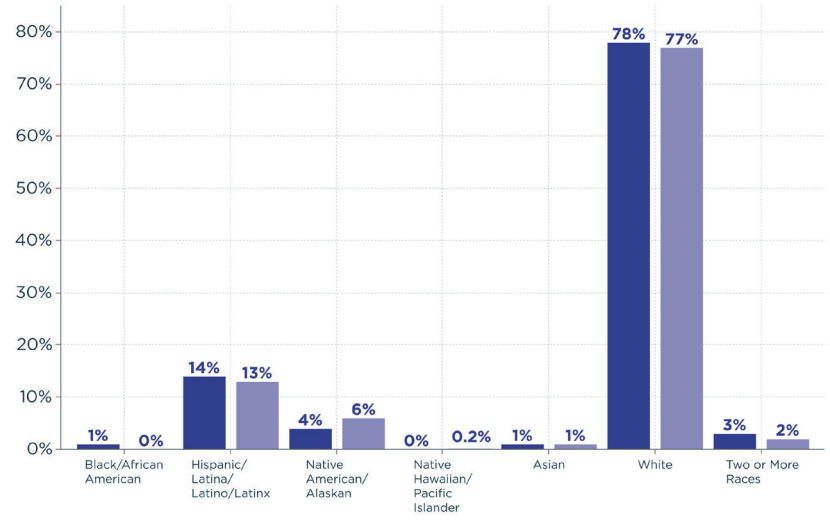
Participation in Foundational High School Computer Science Courses by Demographic

Student Demographics 9-12 **Participation in Foundational Courses**

CS Enrollment by Subgroup



CS Enrollment by Race/Ethnicity



Appendices

1: State-by-State Policy Table, Policy Adoption Details, and Policy Rubrics

2: Computer Science Access and Participation Methodology

3: Computer Science Access and Participation Data Tables

4: References

Appendix 1:
State-by-State Policy Table, Policy Adoption Details, and Policy Rubrics

State-by-State Policy Adoption

State	State Plan	Standards	Funding	Certific tions	Preservice Incentives	State CS Supervisor	Require All HS to Offer	Grad Credit/ Requirement	Higher Ed Admission
AK	No	Yes	No	No	No	In progress	No	District Decision	No
AL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AZ	No	Yes	Yes	Yes	No	Yes	No	District Decision	No
CA	Yes	Yes	Yes	Yes	No	Yes	No	District Decision	Yes
CO	No	No	Yes	No	No	Yes	No	District Decision	Yes
CT	Yes	Yes	No	Yes	Yes	Yes	Yes	District Decision	No
DC	No	No	No	Yes	No	No	No	Yes	No
DE	No	Yes	No	No	No	No	Yes	Yes	No
FL	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
GA	Yes	In progress	Yes	Yes	Yes	Yes	Yes	Yes	Yes
HI	Yes	Yes	No - Historic Yes	Yes	No	Yes	Yes	Yes	No
IA	Yes	Yes	Yes	Yes	No	Yes	Yes	District Decision	Yes
ID	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IL	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes
IN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
KS	No	Yes	Yes	In progress	Yes	Yes	Yes	District Decision	No
KY	Yes	Yes	Yes	Yes	No	Yes	No	District Decision	Yes
LA	Soon in progress	No	No	Yes	No	No	No	Yes	Yes
MA	Yes	Yes	Yes - Historic Yes	Yes	Yes	Yes	No	Yes	Yes
MD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ME	Yes	No	Yes	No	No	Yes	No	District Decision	No
MI	No	Yes	Yes	No	No	Yes	No	Yes	No
MN	No	No	No	No	No	Yes	No	Yes	No
MO	Soon in progress	Yes	Yes	Yes	No	In progress	Yes	Yes	Yes
MS	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
MT	No	Yes	Yes	Yes	Yes	No	No	District Decision	No
NC	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No
ND	Yes	Yes	No	Yes	No	No	No	Yes	No
NE	In progress	In progress	No	No	No	No	Yes	Yes	No
NH	Yes	Yes	No	Yes	Yes	Yes	Yes	District Decision	No
NJ	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
NM	Yes	Yes	Yes	Yes	No	Yes	No	Yes	No
NV	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NY	No	Yes	Yes	Yes	Yes	No	No	District Decision	No
OH	In progress	Yes	No - Historic Yes	Yes	Yes	Yes	No	Yes	Yes
OK	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes
OR	Soon in progress	No	No	No	No	No	No	District Decision	No
PA	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No
RI	Yes	Yes	Yes - Historic Yes	Yes	Yes	Yes	Other	Yes	No
SC	Soon in progress	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
SD	No	No	No	Yes	No	No	No	Yes	No
TN	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
TX	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
UT	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
VA	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
VT	No	No	No	Yes	Yes	No	No	District Decision	No
WA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WI	No	Yes	No	Yes	Yes	In progress	Other	Yes	No
WV	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
WY	Yes	Yes	Other	Yes	No	Yes	Yes	Yes	Yes

State-by-State Policy Adoption Details

For even more details on the policies below, visit bit.ly/9policies.

Alaska (AK)

Standards: Alaska adopted K–12 computer science standards based on the CSTA standards in 2019.
State CS Supervisor: The Alaska Department of Education & Early Development is currently in the process of hiring a Statewide Coding and Computer Science Coordinator.
Grad Credit/Requirement: Alaska passed a permissive and encouraging policy to allow computer science to count as a mathematics, science, or local CTE/technology credit for graduation, but it is a district decision.

Alaska has a statewide CSTA chapter.

Alabama (AL)

State Plan: The Governor's Computer Science (CS) Advisory Council made policy recommendations in 2019 and a timeline in 2021.
Standards: AL adopted K–12 CS and digital literacy standards in 2018.
Funding: Since 2017, Alabama has allocated $17.5M for K–12 CS education and educator professional development.
Certification: Licensed teachers can add 6–12 CS as an additional teaching field by passing the Praxis exam.
Preservice Incentives: In 2019, the Board of Education passed Teacher Educator Standards for CS.
State CS Supervisor: The Department of Education has an Education Specialist and an Educator Administrator for Digital Literacy and CS.
Require All HS to Offer: All elementary, middle, and high schools must offer CS.
Grad Credit/Requirement: In Alabama, courses including AP Computer Science A or AP Computer Science Principles can count as a mathematics or science credit for graduation.
Higher Ed Admission: Computer science can count as a mathematics or science credit required for admission, as determined by each public institution of higher education in Alabama.

Alabama is a member of the ECEP Alliance, has a statewide CSTA chapter, and Governor Kay Ivey is a member of the Governors' Partnership for K–12 Computer Science.

Arkansas (AR)

State Plan: The AR Dept. of Education released new recommendations for computer science (CS) in 2020, updating their ongoing state plan.
Standards: In 2020, AR adopted revised K–12 CS standards.
Funding: Since 2015, Arkansas has allocated $24.5M for CS.
Certification: AR has an initial CS license and an add-on 4–12 CS endorsement. Each public high school must employ a CS-certified teacher by 2023–24.
Preservice Incentives: AR has approved preparation programs and requires all preservice elementary teachers to receive instruction in CS.
State CS Supervisor: The Dept. of Education has a CS office including a new position focused on postsecondary.
Require All HS to Offer: All elementary, middle, and high schools must offer CS.
Grad Credit/Requirement: In Arkansas, all students must take one credit of computer science to graduate (Act 414, 2021). Any computer science course can count as a mathematics, science, or career focus credit for high school graduation.
Higher Ed Admission: Any computer science course can count as a mathematics or science credit required for admission at institutions of higher education.

AR is a member of the ECEP Alliance, has a statewide CSTA chapter, and Governor Asa Hutchinson is co-chair of the Governors' Partnership for K–12 Computer Science.

Arizona (AZ)

Standards: Arizona adopted K–12 computer science standards with a focus on equity in 2018.
Funding: Since 2016, Arizona has allocated $5.7M for CS. The program requires a 50% match of state funding with private monies or in-kind donations.

Certification: In Arizona, teachers with existing licensure can obtain the PreK–8 or 6–12 endorsement by completing a district-approved program or academic coursework in computer science content and teaching methods. The PreK–12 special subject endorsement requires completing academic coursework in computer science content and methods.
State CS Supervisor: The Arizona Department of Education has a Computer Science and Educational Technology Specialist.
Grad Credit/Requirement: Arizona passed a permissive and encouraging policy to allow computer science to count as a mathematics credit for graduation, but it is a district decision.

AZ has a statewide CSTA chapter and Governor Doug Ducey is a member of the Governors' Partnership for K–12 Computer Science.

California (CA)

State Plan: The State Board of Education adopted the state computer science (CS plan in 2019.
Standards: CA adopted K–12 CS standards in 2018.
Funding: Since 2021, California has allocated $35M for CS.
Certification: Teachers with existing licensure can obtain a supplementary authorization for PreK–12 CS through academic coursework.
State CS Supervisor: The California Department of Education has a Computer Science Coordinator.
Grad Credit/Requirement: 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.
Higher Ed Admission: 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.

CA is a member of the ECEP Alliance and has 12 regional CSTA chapters.

Colorado (CO)

Standards: Although Colorado does not yet have a discrete set of rigorous computer science standards across K–12, the state adopted high school computer science standards in 2018.
Funding: Since 2017, Colorado has allocated $5M for CS.
State CS Supervisor: The Colorado Department of Education has a Computer Science Content Specialist.
Grad Credit/Requirement: Colorado passed a permissive and encouraging policy to allow computer science to count as either a mathematics or science credit for graduation, but it is a district decision.
Higher Ed Admission: A computer science course with a mathematics prerequisite can count as a mathematics credit required for admission at institutions of higher education in Colorado.

CO has a statewide CSTA chapter.

Connecticut (CT)

State Plan: The Connecticut State Board of Education adopted a computer science plan in 2020.
Standards: Connecticut adopted the CSTA K–12 Computer Science Standards in 2018.
Funding: Although SB 957 (2019 created a fund for computer science, no funding has been dedicated yet.
Certification: In Connecticut, teachers with existing licensure can obtain the K–6 or 7–12 endorsement through academic coursework or passing the Praxis CS exam.
Preservice Incentives: Teacher preparation programs are required to include, as part of the curriculum for all preservice candidates, instruction in computer science that is grade-level and subject-area appropriate.
State CS Supervisor: The Connecticut Department of Education has a Computer Science Education Consultant.
Require All HS to Offer: All public elementary, middle, and high schools must teach computer science, with implementation by the 2019–2020 school year.
Grad Credit/Requirement: In 2021, Connecticut passed a permissive and encouraging policy for local boards of education to allow computer science courses aligned to the state computer science standards to count towards the nine STEM credits required for graduation (beginning with the class of 2023).

CT is a member of the ECEP Alliance and has a statewide CSTA chapter.

District of Columbia (DC)

Certification: In DC, teachers with existing licensure can obtain a 7–12 certification by passing the Praxis CS exam. An initial license in computer science requires academic coursework and passing the exam.
Grad Credit/Requirement: In DC, an AP computer science course can count as the fourth-year upper-level mathematics credit for graduation.

Delaware (DE)

Standards: Delaware adopted the CSTA K–12 Computer Science Standards in 2018.
State CS Supervisor: Although the Delaware Department of Education does not have a position dedicated to computer science education, the STEM Education Associate oversees computer science education.
Require All HS to Offer: All high schools are required to offer computer science by the 2020–21 school year.
Grad Credit/Requirement: In Delaware, an Advanced Placement, honors, college prep, or integrated computer science course meeting the computer science and mathematics standards can count as the fourth mathematics credit for graduation.

Delaware has a statewide CSTA chapter.

Florida (FL)

Standards: Florida adopted K–12 computer science standards as a strand within the state science standards in 2016.
Funding: Since 2019, Florida has allocated $40M for CS.
Certification: In Florida, teachers can obtain the K–12 certification as an initial license or an add-on endorsement through academic coursework.
State CS Supervisor: The Florida Department of Education has a Computer Science Program Specialist.
Require All HS to Offer: All middle and high schools are required to offer computer science or provide students access via the Florida Virtual School if a district is unable to provide access.
Grad Credit/Requirement: In Florida, computer science can count as a math or science credit f or graduation.

FL has three regional CSTA chapters.

Georgia (GA)

State Plan: The Georgia Department of Education developed a state plan for expanding computer science in 2018.
Standards: Although Georgia does not yet have a discrete set of rigorous computer science standards across K–12, K–8 computer science standards were adopted in 2019.
Funding: Since 2015, Georgia has allocated $5M for CS.
Certification: In Georgia, teachers with existing licensure can obtain a 6–12 academic endorsement by passing a state assessment. An initial license in computer science requires completing a state-approved program.
Preservice Incentives: The Georgia Department of Education has approved teacher preparation programs leading to certification in computer science.
State CS Supervisor: The Georgia Department of Education has a Computer Science Education Program Specialist.
Require All HS to Offer: All high schools are required to offer CS by the 2024–25 school year. All middle schools must offer instruction by 2022–23, and it is recommended for all elementary schools.
Grad Credit/Requirement: Of the approved computing courses in Georgia, nine can count as the fourth mathematics credit or the fourth science credit for graduation.
Higher Ed Admission: Computer science can count as a science or foreign language credit required for admission at institutions of higher education.

GA is a member of the ECEP Alliance and has a statewide CSTA chapter.

Hawaii (HI)

State Plan: The Hawaii State Department of Education developed a state plan for expanding computer science access in 2018.
Standards: Hawaii adopted the CSTA K–12 Computer Science Standards in 2018.
Funding: Although HI does not currently provide dedicated state funding, the state allocated $500K to CS in 2018.
Certification: Licensed teachers can obtain a K–6, 6–12, or K–12 CS certification by completing a state-approved program, the Praxis CS exam, coursework and experience, PD and experience, or holding a certification from another state.
State CS Supervisor: The Hawaii Department of Education has a Computer Science Specialist.

Require All HS to Offer: All high schools must offer at least one CS course by the 2021–22 school year, and all middle, elementary, and charter schools by the 2024–25 school year.
Grad Credit/Requirement: In Hawaii, AP computer science can count as the fourth mathematics credit required for the Academic or STEM Honors Recognition Certificate for graduation.

HI is a member of the ECEP Alliance, has a statewide CSTA chapter, and Governor David Ige is a member of the Governors' Partnership for K–12 Computer Science.

Iowa (IA)

State Plan: The Iowa Department of Education developed a state plan for expanding access to computer science in 2022.
Standards: Iowa adopted the CSTA K–12 Computer Science Standards in 2018.
Funding: Since 2018, Iowa has allocated $3M for computer science.
Certification: In Iowa, teachers with existing licensure can obtain a 5–12 or K–8 endorsement by completing a state-approved program or coursework. The state waived these requirements in 2018 for teachers who could demonstrate content knowledge and successful teaching experience.
State CS Supervisor: The Iowa Department of Education has a Computer Science Education Program Consultant.
Require All HS to Offer: All high schools are required to offer CS by the 2022–23 school year, and all elementary and middle schools are required to offer CS in at least one grade level by 2023–24.
Grad Credit/Requirement: Iowa passed a permissive and encouraging policy to allow computer science to count as a mathematics credit for graduation, but it is a district decision.
Higher Ed Admission: Computer science can count towards a core subject area credit required for admission at institutions of higher education in Iowa.

IA has a statewide CSTA chapter and Governor Kim Reynolds is a member of the Governors' Partnership for K–12 Computer Science.

Idaho (ID)

State Plan: The Idaho STEM Action Center and Idaho Digital Learning Academy developed the Idaho Computing Technology K–12 CS State Plan in 2018.
Standards: Idaho adopted K–12 computer science standards based on the CSTA standards in 2017.
Funding: Since 2016, ID has allocated $8.5M for CS.
Certification: In Idaho, teachers with existing licensure can obtain a 6–12 or 5–9 endorsement by completing a state-approved program and passing the Praxis CS exam. An initial license in computer science also requires completing a state-approved program and passing the exam. A 6–12 CTE Occupational Specialist certification in computer science can be obtained with industry experience.
Preservice Incentives: The Idaho Department of Education has approved teacher preparation programs.
State CS Supervisor: The Idaho Governor's STEM Action Center has a STEM and Computer Science Program Manager and the Department of Education has a Computer Science Specialist.
Require All HS to Offer: All school districts are required to make one or more CS courses available to all high school students.
Grad Credit/Requirement: In Idaho, AP Computer Science or dual-credit computer science can count as one mathematics (after completion of Algebra II) or up to two science credits for graduation.
Higher Ed Admission: Under certain conditions, computer science can count as a mathematics or science credit required for admission at institutions of higher education in Idaho.

ID has a statewide CSTA chapter.

Illinois (IL)

Standards: Illinois adopted K–12 computer science standards based on the CSTA standards in 2022.
Certification: In Illinois, teachers with existing licensure can obtain a 5–8, 6–8, or 9–12 endorsement through academic coursework and passing the state content exam.
State CS Supervisor: The Illinois State Board of Education has a Computer Science Principal Consultant.
Require All HS to Offer: Each school district is required to provide an opportunity for every high school students to take a CS course by the 2023–24 school year.
Grad Credit/Requirement: In Illinois, computer science can count as a mathematics credit for graduation.
Higher Ed Admission: Computer science can count as a mathematics credit required for admission at institutions of higher education.

IL has three regional CSTA chapters.

Indiana (IN)

State Plan: The Indiana Department of Education created a state plan for computer science education implementation in 2019.
Standards: Indiana published K–12 computer science standards in 2018.
Funding: Since 2018, Indiana has allocated $12.6M for CS.
Certification: Licensed teachers can obtain a 5–12 or preK–12 CS endorsement by passing the state content exam. An initial license also requires a state-approved program.
Preservice Incentives: The Indiana Department of Education has approved computer science teacher preparation programs. In 2020, Indiana began requiring all preservice K–6 teachers to learn computer science.
State CS Supervisor: The Indiana Department of Education has a Computer Science Specialist.
Require All HS to Offer: All elementary, middle, and high schools are required to offer CS by the 2021–22 school year.
Grad Credit/Requirement: In Indiana, AP Computer Science, IB Computer Science, Cambridge International CS, Industrial Automation and Robotics, or CTE CS I or II can count as a mathematics or quantitative reasoning credit required for graduation. Computer science can also count as the third science requirement.
Higher Ed Admission: Computer science can count as a mathematics or science credit required for admission at institutions of higher education, which aligns with Indiana's high school graduation policy.

IN is a member of the ECEP Alliance, has a statewide CSTA chapter, and Governor Eric Holcomb is a member of the Governors' Partnership for K–12 Computer Science.

Kansas (KS)

State Plan: Although Kansas has not yet created a plan for K–12 computer science, the State Board of Education adopted five policy recommendations from the Department of Education's Computer Science Education Task Force in 2020. The five recommendations include encouraging all schools to offer computer science, allowing computer science to satisfy a core graduation requirement, create a licensure endorsement, and arrange funding to carry out these goals.
Standards: Kansas adopted preK–12 computer science standards in 2019.
Funding: In 2022, Kansas allocated $1M to provide grants to high-quality professional learning providers to develop and implement computer science teacher professional development programs.
Certific tion: The Kansas State Department of Education has developed proposed licensure standards for preK-12 computer science educators.
Preservice Incentives: HB 2466 (2022) established the computer science educator program to promote the advancement of computer science licensed and preservice teacher preparation in Kansas.
State CS Supervisor: The Kansas Department of Education has a Computer Science Education Program Consultant.
Require All HS to Offer: HB 2466 (2022) required all secondary schools to offer at least one computer science course beginning in the 2023-24 school year or requires a school district to submit a plan to the state board of education describing how the district intends to offer a computer science course and the school year that course will first be offered.
Grad Credit/Requirement: In Kansas, locally-approved computer science courses can count as a credit for graduation, but it is a district decision.

KS has a statewide CSTA chapter.

Kentucky (KY)

State Plan: The Kentucky Department of Education developed a state plan for K–12 computer science in 2022.
Standards: Kentucky adopted K–12 computer science standards in 2019.
Funding: 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: In Kentucky, teachers with existing licensure can obtain an 8–12 endorsement in computer science.
State CS Supervisor: The Kentucky Department of Education has a dedicated K–12 Computer Science Lead.
Grad Credit/Requirement: 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.
Higher Ed Admission: 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.

KY has two CSTA chapters.

Louisiana (LA)

State Plan: SB 190 (2022 establishes the Computer Science Education Advisory Commission to provide recommendations to the State Board of Elementary and Secondary Education through the state Department of Education for the development and implementation of a state action plan for the delivery of education in computer science in all public schools.

The organizational meeting of the advisory committee will be called by August 15, 2022.
Certification: In Louisiana, teachers with existing licensure can add a 6–12 specialty content area in computer science through academic coursework and/or passing the Praxis CS exam.
Grad Credit/Requirement: In Louisiana, AP Computer Science A can count as an advanced mathematics credit for graduation.
Higher Ed Admission: AP Computer Science A can count as a mathematics credit required for admission at institutions of higher education in Louisiana.

LA has a statewide CSTA chapter.

Massachusetts (MA)

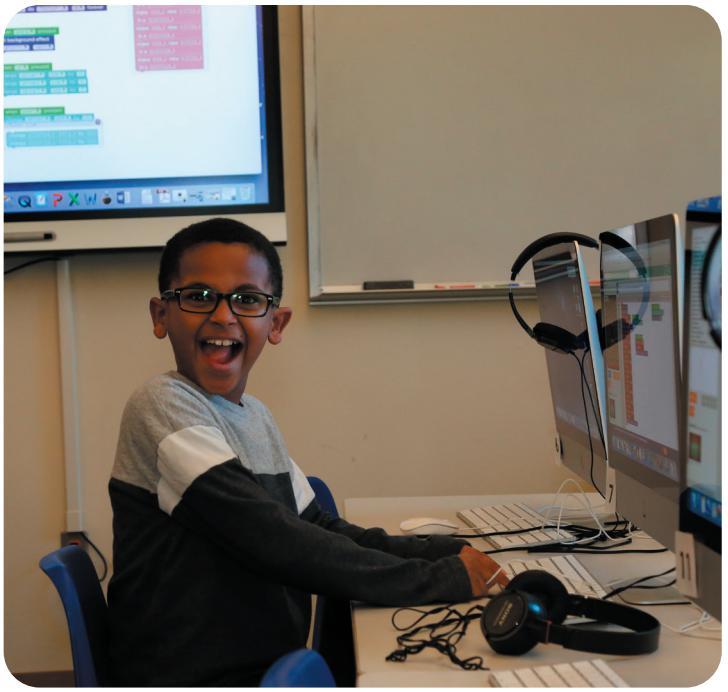
State Plan: The Massachusetts Department of Elementary and Secondary Education created the 2019 Digital Literacy Now 3 Year Plan, which includes goals, strategies, and timelines for advancing K–12 computer science.
Standards: Massachusetts adopted K–12 digital literacy and computer science standards in 2016.
Funding: In previous years, MA has allocated $3.1M for CS.
Certification: In Massachusetts, teachers with or without existing licensure can obtain a 5–12 certification by demonstrating competency in each of the computer science standards through a combination of academic coursework, professional development, mentorship experience, teaching experience, passing the Pearson and/or Praxis CS exam, and/or by completing an approved teacher preparation program.
Preservice Incentives: The Massachusetts Department of Elementary and Secondary Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
State CS Supervisor: The Massachusetts Department of Elementary and Secondary Education has a Computer Science Content Coordinator.
Grad Credit/Requirement: In Massachusetts, a computer science course can substitute for either a mathematics or laboratory science course if the course includes rigorous mathematical or scientific concepts and aligns with the state computer science standards. Students in technical and vocational programs may substitute a computer science course for a foreign language.

Higher Ed Admission: A computer science course can count as a mathematics, science, or foreign language credit required for admission at institutions of higher education if the course meets certain criteria.

MA is a member of the ECEP Alliance and has two regional CSTA chapters.

Maryland (MD)

State Plan: The Maryland Center for Computing Education developed a state plan for computer science in 2018.
Standards: Maryland approved K–12 computer science standards aligned to the CSTA standards in 2018.
Funding: Since 2018, MD has allocated $9M for CS.
Certification: In Maryland, teachers with existing licensure can obtain a 7–12 endorsement through academic coursework or passing the Praxis CS exam. An initial computer science licensure requires completing academic coursework and passing the exam.
Preservice Incentives: The Maryland State Department of Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly. MCCE provides funding for public or private teacher preparation institutions to establish computer science education programs or integrated computer science into existing programs via HB 281 (2018).
State CS Supervisor: The Maryland State Department of Education has a Computer Science Education Specialist as well as a Career Programs, STEM, and Computer Science Coordinator who work with the Director of the Maryland Center for Computing Education to oversee computer science education. Each local school system has also designated a central office administrator who is the point of contact for computer science.
Require All HS to Offer: HB 281 (2018) required all high schools to offer at least one computer science course by the 2021–2022 school year, all middle schools are required to teach computational thinking, and all school boards are asked to incorporate computer science in each elementary school.
Grad Credit/Requirement: In Maryland, Foundations of Computer Science, Computer Science Principles, AP Computer Science A, and other computer science courses can fulfill the credit requirement in Computer Science, Engineering, or Technology Education. AP Computer Science A can also count as one of the four mathematics credits for graduation.



Higher Ed Admission: AP Computer Science can count as one of the four mathematics credits required for admission at institutions of higher education, as long as computer science is not the final year course, which aligns with Maryland's high school graduation policy.

MD is a member of the ECEP Alliance, has a statewide CSTA chapter, and Governor Larry Hogan is a member of the Governors' Partnership for K–12 Computer Science.

Maine (ME)

State Plan: The Maine Department of Education developed a state plan for computer science in January 2020.
Funding: LD 127 (FY 2022 and 2023) allocated $50K annually to establish a pilot program to provide professional development grants for computer science instruction. The grants prioritize applicants that serve socioeconomically disadvantaged school districts or prioritize student populations traditionally underrepresented in computer science.
State CS Supervisor: The Maine Department of Education has a Secondary Digital Learning and Computer Science Specialist.
Grad Credit/Requirement: The Maine Department of Education published guidance in 2019 on a previously established policy that allows districts to decide whether to count computer science as a credit for graduation.

ME has a statewide CSTA chapter.

Michigan (MI)

Standards: Michigan adopted the CSTA K–12 Computer Science Standards in 2019.
Funding: The MiSTEM council uses $450K in funds allocated from SB 845 (FY 2023), HB 4411 (FY 2022), SB 927 (FY 2021 to offer professional development for educators in computer science, as approved by the MiSTEM council.
Certification: Michigan phased out the computer science endorsement in 2017 so that any licensed teacher is eligible to teach computer science.
Preservice Incentives: After Michigan phased out the computer science certification, teacher preparation programs in the state also phased out preservice programs in computer science education.
State CS Supervisor: The Michigan Department of Education has a Computer Science Consultant.
Grad Credit/Requirement: In Michigan, any department-approved computer science course can count as the fourth mathematics credit for graduation or replace the Algebra II requirement.

MI has a statewide CSTA chapter.

Minnesota (MN)

Funding: Although Minnesota does not provide dedicated state funding, MN was awarded a federal grant to develop a screening process to identify students gifted in computer science, particularly from limited English or marginalized racial and ethnic groups.
State CS Supervisor: The Minnesota Department of Education has a STEM and Computer Science Integration Specialist.
Grad Credit/Requirement: In Minnesota, computer science can count as a mathematics credit for graduation if the course meets state academic standards in mathematics.

MN is a member of the ECEP Alliance and has a statewide CSTA chapter.

Missouri (MO)

State Plan: Missouri SB 718 establishes the "Computer Science Education Task Force" to develop a strategic plan for expanding a statewide computer science education program.
Standards: Missouri adopted K–12 computer science standards in 2019.
Funding: HB 3002 (FY 2023) and HB 2 (FY 2020, 2021, 2022) allocated $450K annually to the Computer Science Education fund created by HB 3 (2018 special session).
Certification: In Missouri, teachers can obtain a 9–12 certification through academic coursework or by passing the state content exam. Teachers can be authorized to teach computer science after completion of department-approved professional development. State funding for computer science can be used to support credentialing for teachers.
State CS Supervisor: SB 718 (2022) directs the Missouri Department of Elementary and Secondary Education to appoint a computer science advisor to implement the bill's requirement for all elementary, middle, and high schools to offer computer science.
Require All HS to Offer: SB 718 (2022) required each public high school and charter school to offer at least one computer science course in an in-person setting or as a virtual or distance course option by the 2023-24 school year.
Grad Credit/Requirement: In Missouri, any computer science course that aligns to the standards and has an appropriately qualified teacher can count as a mathematics, science, or practical arts credit for graduation.
Higher Ed Admission: Beginning July 1, 2023, computer science courses counted toward state graduation requirements shall be equivalent to one science or practical arts credit for the purpose of satisfying admission requirements at any public institution of higher education in the state.

MO has three regional CSTA chapters and Governor Michael Parson is a member of the Governors' Partnership for K–12 Computer Science.

Mississippi (MS)

State Plan: The Mississippi Department of Education developed a 10-year strategic plan for statewide computer science education.
Standards: Mississippi adopted K–12 computer science standards based on the CSTA standards in 2018.
Funding: Since 2019, MS has allocated $2.6M for CS.
Certification: In Mississippi, teachers with existing licensure can obtain an AP Computer Science Principles Endorsement by completing an approved AP training. Teachers can also obtain a K–8 or 7–12 add-on endorsement by completing coursework or approved professional development for specific courses.
Require All HS to Offer: HB 633 (2021) required all schools (elementary, middle, and high) to offer instruction in computer science by the 2024–2025 school year.
Grad Credit/Requirement: Beginning with incoming freshmen of 2018–2019, all Mississippi students must earn one credit in technology or computer science. Multiple computer science courses may satisfy the graduation credit.
Higher Ed Admission: All students applying to state institutions of higher learning in Mississippi for entrance in Fall 2022 must have earned one credit in computer science or technology, which aligns with the high school graduation policy.

MS is a member of the ECEP Alliance and has a regional CSTA chapter.

Montana (MT)

Standards: Montana adopted K–12 computer science standards in November 2020.
Funding: HB 644 (FY 2022-23) allocated $32K to support the development of computer programming courses at high schools on Indian reservations across Montana and support professional development for high school teachers.
Certification: In Montana, teachers with existing licensure can obtain a K–12 endorsement through academic coursework. An initial license in computer science requires completing a teacher preparation program and passing the Praxis CS exam, or completing a non-traditional teaching program with five years of successful teaching experience.
Preservice Incentives: The Montana Office of Public Instruction has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
Grad Credit/Requirement: Montana passed a permissive and encouraging policy to allow computer science to count as a science, mathematics, elective, or CTE graduation requirement, but it is a district decision.

MT has a statewide CSTA chapter.

North Carolina (NC)

State Plan: The North Carolina Department of Public Instruction developed a state plan for expanding computer science in 2018.
Standards: North Carolina adopted K–12 computer science standards in August 2020.
Funding: Since 2017, NC has allocated $7.7M for CS.
Certification: In North Carolina, teachers with existing CTE licensure can obtain a 9–12 CTE computer programming endorsement through academic coursework.
State CS Supervisor: The North Carolina Department of Public Instruction has a Director of Computer Science and Technology.
Grad Credit/Requirement: In North Carolina, computer science can count as the fourth mathematics credit for graduation in the Future-Ready Core track.

NC is a member of the ECEP Alliance, has a statewide CSTA chapter, and Governor Roy Cooper is a member of the Governors' Partnership for K–12 Computer Science.

North Dakota (ND)

State Plan: In 2022, the North Dakota Department of Public Instruction developed and published a plan for K–12 computer science education.
Standards: North Dakota adopted K–12 computer science and cybersecurity standards in 2019, becoming the first state to create K–12 cybersecurity standards.
Certification: In North Dakota, teachers with existing licensure can obtain a grade level corresponding credential through academic coursework. Teachers are eligible to teach specific computer science courses for five years after earning a Level I (200 hours), Level II (40 hours), or Level III (15 hours) Computer Science and Cybersecurity Credential (effective April 1, 2020). Teachers can renew the credential by completing 30 hours of academic work during the five year period.

Grad Credit/Requirement: In North Dakota, AP Computer Science A or Mathematics for Computer Science/Information Technology can count as a mathematics credit for graduation.

ND has a statewide CSTA chapter and Governor Doug Burgum is a member of the Governors' Partnership for K–12 Computer Science.

Nebraska (NE)

State Plan: The Nebraska Department of Education is in the process of developing a state plan for K–12 computer science.
Standards: The Nebraska Senate passed a bill requiring the Board of Education to adopt measurable academic content standards for computer science and technology education under the mathematics, science, or career and technical education standards.
Require All HS to Offer: LB 1112 (2022) required each school district to include computer science and technology education in the instructional program of its elementary and middle schools, as appropriate, and beginning in school year 2026-27, require each student attending a public school to complete at least one five credit high school course/one-semester high school course in computer science and technology prior to graduation.
Grad Credit/Requirement: In Nebraska, all students must take a five credit course or a one semester course of computer science to graduate (LB 1112, 2022).

NE has two regional CSTA chapters.

New Hampshire (NH)

State Plan: New Hampshire developed a plan for expanding computer science in 2018.
Standards: New Hampshire adopted K–12 computer science standards based on the CSTA standards in 2018.
Certification: In New Hampshire, teachers with or without existing licensure can obtain certification by passing a national exam, holding a computer science teaching assignment prior to June 2019, or submitting evidence of skills, knowledge, and competencies in computer science content. Evidence could include coursework, professional experience, letters of recommendation, professional development, or other artifacts.
Preservice Incentives: The New Hampshire Department of Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
State CS Supervisor: The New Hampshire Department of Education has a STEM Integration and Computer Science Administrator.
Require All HS to Offer: HB 1674 (2018) required all schools to create and implement computer science programs with a target goal of 2020 for full implementation.
Grad Credit/Requirement: New Hampshire passed a permissive and encouraging policy to allow computer science to count as a mathematics or technology credit for graduation, but it is a district decision.

NH is a member of the ECEP Alliance and has a statewide CSTA chapter.

New Jersey (NJ)

State Plan: The New Jersey Department of Education developed a state plan for computer science education implementation in 2019.
Standards: New Jersey adopted revised computer science and design thinking standards in June 2020.
Funding: Since 2018, NJ has allocated $6.8M for CS.
Certification: In New Jersey, teachers with existing licensure can obtain a 9–12 CTE endorsement with a combination of previous teaching experience and academic coursework.
State CS Supervisor: The New Jersey Department of Education has a Computer Science Coordinator.
Require All HS to Offer: A2873 (2018) required all high schools to offer a course in computer science by the 2018–2019 school year. S990 (2020) required

the department to report on computer science course enrollment disaggregated by gender, race and ethnicity, special education status, English language learner status, eligibility for the free and reduced price lunch program, and grade level.
Grad Credit/Requirement: In New Jersey, computer science can count as a mathematics credit for graduation.

NJ has a CSTA chapter and Governor Phil Murphy is a member of the Governors' Partnership for K–12 Computer Science.

New Mexico (NM)

State Plan: The New Mexico Public Education Department developed a state strategic plan for K–12 computer science in 2021.
Standards: New Mexico adopted the CSTA K–12 Computer Science Standards in 2018.
Funding: Since 2019, NM has allocated $1.2M for CS.
Certification: In New Mexico, teachers with existing licensure in secondary education can obtain a computer science endorsement through one of six pathways: completing academic coursework, passing a licensure exam, work experience, professional development, industry certification, or subject-specific teaching experience.
State CS Supervisor: The New Mexico Public Education Department has a K–8 Computer Science Specialist and an Education Administrator in the Office of College and Career Readiness focused on high school computer science.
Grad Credit/Requirement: In New Mexico, computer science can count as a mathematics or science credit for graduation, provided that a student has demonstrated competence in mathematics or science.

NM has a statewide CSTA chapter.

Nevada (NV)

State Plan: The Nevada Department of Education developed the Computer Science Strategic Plan in 2018.
Standards: Nevada adopted K–12 computer science standards in 2018.
Funding: SB 313 (FY 2020 and 2021) allocated $700K and $933K, and SB 200 (FY 2018 and 2019) allocated $1M and $1.4M to expand computer science education.
Certification: In Nevada, teachers with existing licensure can obtain a secondary endorsement in advanced computer science through academic coursework or passing the Praxis CS exam. Teachers can also obtain a K–12 Introductory Computer Science endorsement through academic coursework. Funding is available to offset the cost of certification.
Preservice Incentives: SB 313 (2019) required training all preservice teachers in computer science and computer literacy. The bill also allowed the Nevada Board of Regents to apply for a grant from the computer science education fund to develop curriculum and standards for preservice computer science educators.
State CS Supervisor: The Nevada Department of Education has a Computer Science Education Programs Professional.
Require All HS to Offer: SB 200 (2018) required all high schools to make a computer science course available to all students by July 1, 2022, and required all students to receive instruction in computer education before 6th grade.
Grad Credit/Requirement: In Nevada, all students must earn one half-credit in computer education and technology for graduation with at least half of the instructional time dedicated to computer science and computational thinking. A student may take this half-credit in middle school but the course must include the high school standards in order to satisfy this graduation requirement. Students may count a full-year credit computer science course towards their fourth-year math or third-year science credit graduation requirement. Allowable courses include AP, CTE, or courses offered by a community college or university.
Higher Ed Admission: A computer science course can count as a mathematics or science credit required for admission at institutions of higher education, which aligns with Nevada's high school graduation policy.

NV is a member of the ECEP Alliance and has a statewide CSTA chapter.

New York (NY)

Standards: The New York State Board of Regents approved the K–12 Learning Standards for Computer Science and Digital Literacy in December 2020.
Funding: Since 2018, NY has allocated $24M to expand CS education via the Smart Start grant program.
Certification: In New York, teachers with or without existing licensure can obtain a 7–12 certification by completing one of the following: approved state

teacher preparation program pathway, academic coursework, or industry experience and pedagogical coursework. Any licensed teacher who teaches computer science before September 2022 will be eligible to continue teaching computer science in the same district for ten years.
Preservice Incentives: The New York State Education Department has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
Grad Credit/Requirement: New York passed a permissive and encouraging policy to allow computer science to count as either a mathematics or science credit for graduation, but it is a district decision.

NY has eight regional CSTA chapters.

Ohio (OH)

State Plan: The Ohio Department of Education and Department of Higher Education are in the process of developing a state plan for K–12 computer science.
Standards: Ohio adopted K–12 computer science standards and a model curriculum in 2018.
Funding: Although Ohio does not currently provide dedicated state funding, HB 166 (FY 2020) appropriated $1.5M for teachers to become credentialed in computer science.
Certification: 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 2023. The state provided dedicated funding in FY 2020–2021 to offset the cost of computer science certification.
Preservice Incentives: The Ohio Department of Higher Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly. HB 110 (2021) required each educator preparation program and each educator licensure candidate to receive instruction in computer science and computational thinking.
State CS Supervisor: The Ohio Department of Education has a Computer Science Education Program Specialist.
Grad Credit/Requirement: In Ohio, a computer science course that addresses high school mathematics standards and focuses on algorithms for problem-solving can count as a mathematics credit for graduation. One credit of advanced computer science can also satisfy the requirement for 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.
Higher Ed Admission: An advanced computer science course can count towards the mathematics, science, or elective admission requirements, and a unit of computer coding can count towards foreign language requirements at state universities if the student applied the course towards their high school graduation requirements.

OH is a member of the ECEP Alliance and has a statewide CSTA chapter.

Oklahoma (OK)

State Plan: CSforOK developed a strategic plan for expanding computer science education in 2020.
Standards: Oklahoma adopted K–12 computer science standards in 2018.
Funding: Although SB 593 (2019) authorized the Oklahoma State Department of Education to create a grant program for computer science professional learning and recommended $1M subject to authorization, no funds were appropriated for the program.
Certification: In Oklahoma, teachers with existing licensure can obtain a 9–12 certification through passing the state content exam; teachers can also earn an initial license in computer science.
Preservice Incentives: Oklahoma has competencies for licensure and certification in computer science, but no universities currently meet them.
State CS Supervisor: The Oklahoma State Department of Education has a Director of Education Technology and Computer Science Education, and will soon hire a full-time Director of Computer Science Education.

Require All HS to Offer: SB 252 (2021) required all schools (elementary, middle, and high) to offer computer science by the 2024–2025 school year. Further, SB 593 (2019) directed the State Department of Education to develop a rubric for computer science programs in elementary, middle, and high schools to serve as a guide to schools for implementing quality computer science programs.
Grad Credit/Requirement: In Oklahoma, an approved computer science course can count as a mathematics or computer technology/world language credit in the Core Diploma Pathway.
Higher Ed Admission: Two computer science credits can count towards the additional required units in required content areas for admissions at institutions of higher education, which aligns with Oklahoma's high school graduation policy.

OK has a statewide CSTA chapter.

Oregon (OR)

State Plan: The Oregon Governor sent a letter to the Oregon Department of Education and Higher Education Coordinating Commission to begin the development of a statewide implementation plan for computer science education.
Funding: Although Oregon does not yet provide dedicated state funding towards professional development for computer science, the governor announced the use of $5M in federal funds (Governor's Emergency Education Relief) to ensure students across Oregon have access to computer science by the 2027-28 school year.
Grad Credit/Requirement: Oregon passed a permissive and encouraging policy to allow computer science to count as a fourth science elective for graduation, but it is a district decision.

OR is a member of the ECEP Alliance and has a statewide CSTA chapter.

Pennsylvania (PA)

Standards: Pennsylvania endorsed the CSTA K–12 Computer Science Standards in 2018.
Funding: Pennsylvania budgets (Act 1A for FY 2019, FY 2020, the FY 2021 interim budget, and FY 2022) each dedicated $20M annually to PAsmart, a program established to expand STEM and computer science education, including teacher professional development. PAsmart grants prioritize proposals that boost participation in computer science education for historically underserved and underrepresented populations.
Certification: In Pennsylvania, teachers with existing licensure can obtain a 9–12 certification through passing the state content exam; teachers can also earn an initial license in computer science.
Preservice Incentives: The Pennsylvania Department of Education developed specific program guidelines for state approval of professional educator programs in computer science and lists these programs publicly.
State CS Supervisor: The Pennsylvania Department of Education has a Consultant to the Secretary of Education on STEM/Computer Science.
Grad Credit/Requirement: In Pennsylvania, any computer science course aligned with the computer science standards can count as a mathematics or science credit for graduation.

PA has four regional CSTA chapters and Governor Tom Wolf is a member of the Governors' Partnership for K–12 Computer Science.

Rhode Island (RI)

State Plan: CS4RI created a state plan for computer science education implementation.
Standards: Rhode Island adopted K–12 computer science standards in 2018.
Funding: Since 2016, RI has allocated $840K for CS. The Department also received a $2.5M federal grant to support the creation of high school CS pathways that incorporate work-based learning.
Certification: In Rhode Island, teachers with existing licensure can obtain an endorsement through academic coursework from an approved provider.
Preservice Incentives: The Rhode Island Department of Education has approved teacher preparation programs leading to the endorsement in computer science and lists those programs publicly.

State CS Supervisor: The Rhode Island Department of Education has a core team advancing the goals of CS4RI, including the Digital Learning Specialist, CS4RI High School Grant Project Manager, and CS4RI Work-Based Learning Specialist.
Require All HS to Offer: Rhode Island does not yet require that all secondary schools offer computer science. However, the CS4RI initiative and the Governor's office set a goal for all students to have access to computer science courses by the end of 2017.
Grad Credit/Requirement: In Rhode Island, computer science can count as a mathematics or science credit for graduation.

RI is a member of the ECEP Alliance and has a statewide CSTA chapter

South Carolina (SC)

Standards: South Carolina adopted K–8 computer science and digital literacy standards in 2017 and high school standards in 2018.
Funding: Since 2017, SC has allocated $3.1M for CS.
Certification: In South Carolina, teachers with or without existing licensure can obtain 9–12 certification by completing an approved preparation program and passing the state content exam. The state provided dedicated funding in FY 2022 to offset the cost of computer science certification.
Preservice Incentives: There are program approval standards (CS teacher standards), but no universities currently meet them.
State CS Supervisor: The South Carolina Department of Education has a Computer Science Specialist.
Require All HS to Offer: The South Carolina Department of Education revised the list of courses that satisfy the computer science graduation requirement, effectively requiring all high schools to offer at least one computer science course by the 2018–2019 school year (with waivers available until the 2020–2021 school year) and requiring all students to take at least one credit of computer science to graduate.
Grad Credit/Requirement: In South Carolina, all students must take one credit of computer science to graduate. Multiple computer science courses are approved to meet the credit.
Higher Ed Admission: Computer science can count as the fourth mathematics credit required for admission at institutions of higher education. Further, students are strongly encouraged to take computer science as a high school elective.

SC is a member of the ECEP Alliance, has a statewide CSTA chapter, and Governor Henry McMaster is a member of the Governors' Partnership for K–12 Computer Science.

South Dakota (SD)

Certification: In South Dakota, teachers with existing licensure can obtain a K–6 or 7–12 endorsement through academic coursework or passing the Praxis CS exam.
Grad Credit/Requirement: In South Dakota, a state-approved advanced computer science course can count as a science credit for students who earn a regular diploma.

SD has a statewide CSTA chapter.

Tennessee (TN)

State Plan: The Tennessee Department of Education presented the Tennessee Computer Science State Education Plan to the legislature in April 2020 and posted a timeline for each recommendation on the department website.
Standards: Tennessee published a comprehensive set of K–12 computer science standards in July 2020.
Funding: HB 2153 (FY 2023-24) includes $1.3M for computer science education, including professional development and the implementation of a graduation requirement in computer science. This funding will continue in future years. PC 651 (FY 2021) includes $518K for computer science education, including professional development, within the Governor's Future Workforce Initiative.
Certification: In Tennessee, teachers with existing licensure can obtain the Computer Science Employment Standard endorsement after completing approved professional development. An initial license in computer science requires completing academic coursework and passing the Praxis CS exam. In 2022, the legislature passed a bill requiring approval of a new endorsement in computer science.
Preservice Incentives: The Tennessee Department of Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.

State CS Supervisor: The Tennessee Department of Education has a Director of STEAM and Computer Science.
Require All HS to Offer: HB 2153 (2022) requires that by the 2024-2025 school year, high school students receive one full school year of computer science education to satisfy graduation requirements, middle school students receive one course in computer science education, and elementary school students receive grade-appropriate computer science education.
Grad Credit/Requirement: In Tennessee, all high school students must receive one full school year of computer science education to satisfy graduation requirements. Previously, computer science could count as a mathematics credit for graduation.

TN has two CSTA chapters.

Texas (TX)

State Plan: Although HB 2984 (2019) required the development of a state plan for computer science, Texas has not made progress towards a state plan.
Standards: Texas adopted the Texas Essential Knowledge and Skills (TEKS) Fundamentals of Computer Science for K-8 in June 2022 and TEKs at the high school level contain computer science standards.
Funding: SB 1 (FY 2022 and 2023) allocated $2.585M to make an AP Computer Science Principles course available in every high school and HB 3 and HB 963 (2019) consolidated all computer science (or technology applications) courses into CTE and allowed schools to receive weighted funding for students enrolled in those courses in grades 7–12.
Certification: In Texas, teachers with or without existing licensure can obtain an 8–12 certification by completing a state-approved teacher preparation program and passing certification exams.
Preservice Incentives: The Texas Education Agency has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
Require All HS to Offer: The Texas State Board of Education added computer science courses to the list of required offerings at high schools (19 TAC § 74.3) in 2014.
Grad Credit/Requirement: In Texas, AP Computer Science A, IB Computer Science Higher Level, or discrete math can count as a required mathematics course for graduation. Computer science can also count as an advanced science credit, and multiple course options can satisfy the foreign language requirement.
Higher Ed Admission: Computer science can count as the fourth mathematics credit required for admission at institutions of higher education in Texas.

TX is a member of the ECEP Alliance and has five regional CSTA chapters.

Utah (UT)

State Plan: Utah adopted the Utah Computer Science Education Master Plan in 2019.
Standards: Utah adopted K–5 computer science standards in September 2019 and 6–12 standards in May 2020.
Funding: Since 2016, UT has allocated $18.9M for CS.
Certification: In Utah, teachers with existing secondary or CTE licensure can obtain up to six course-specific 6–12 endorsements. Each endorsement requires a combination of experience or coursework, exams, professional development, and more.
Preservice Incentives: The Utah State Board of Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
State CS Supervisor: The Utah State Board of Education has a Computer Science State Specialist.
Grad Credit/Requirement: In Utah, a computer programming course can replace the third mathematics credit (Secondary III) by request from a parent, or it can count as a science credit. AP Computer Science, Computer Science Principles, and Computer Programming II are approved to count as a science graduation credit. All students must take a course in Digital Studies, and four of the six courses that can fulfill the requirement are computer science.

UT is a member of the ECEP Alliance and has a statewide CSTA chapter.

Virginia (VA)

Standards: Virginia added mandatory K–12 computer science standards to the state Standards of Learning in 2017, effectively requiring all K–12 schools to offer instruction in computer science.
Funding: HB 30 (FY 2021 and 2022) allocated $1.35M annually to support computer science education and implementation of the standards, including professional development. HB 30 (FY 2021 and 2022), HB 1700 (FY 2019 and 2020), and HB 1500 (FY 2017 and 2018) also allocated $550K annually for K–12 computer science professional development with CodeVA.
Certification: In Virginia, teachers with existing licensure can obtain an endorsement through academic coursework or passing the Praxis CS exam. An initial license in computer science requires completing a state-approved program or academic coursework. The Department of Education convened a workgroup on micro-credentials for certification in subjects including computer science and is now developing recommendations as authorized by HB 836 (2020).
Preservice Incentives: The Virginia Department of Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
State CS Supervisor: The Virginia Department of Education has a Computer Science Coordinator.
Require All HS to Offer: HB 831 (2016) added computer science into the Virginia K–12 Standards of Learning, which all schools must implement.
Grad Credit/Requirement: In Virginia, a variety of computer science courses can count as a credit for graduation in lab science, career and technical education, or mathematics at or above the level of Algebra II. Students in English as a Second Language programs can add a computer science elective for graduation credit if they test out of their foreign language requirement.

VA is a member of the ECEP Alliance and has seven regional CSTA chapters.

Vermont (VT)

Certification: In Vermont, teachers with existing licensure can obtain a 7–12 endorsement by demonstrating knowledge standards, performance standards, and completing academic coursework.
Preservice Incentives: The Vermont Agency of Education has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
State CS Supervisor: Although the Vermont Agency of Education does not have a position dedicated to computer science education, the Education Technology Coordinator oversees computer science education.
Grad Credit/Requirement: Vermont passed a permissive and encouraging policy to allow computer science to count towards a core graduation requirement at the district level.

VT has a statewide CSTA chapter.

Washington (WA)

State Plan: The Washington State Office of the Superintendent of Public Instruction adopted a plan for K–12 computer science education in 2022.
Standards: Washington adopted updated K–12 computer science standards based on the CSTA standards in 2018.
Funding: Since 2015, WA has allocated $8M for the computer science education grant program with a one-to-one private match requirement. HB 1109 exempted the match requirement for districts with greater than 50% of students eligible for free and reduced-price meals.
Certification: In Washington, teachers with existing licensure can obtain a K–12 endorsement through passing the state content exam. Legislation was passed in 2021 to create two new specialty endorsements in computer science and allocated $63,000 to start this process. State funding for computer science can support credentialing for teachers.

Preservice Incentives: The Washington Office of Superintendent of Public Instruction has approved teacher preparation programs leading to certification in computer science. The Washington State Opportunity Scholarship also provided funding for Central Washington University and Western Washington University to develop a computer science endorsement program.
State CS Supervisor: The Washington Office of the Superintendent of Public Instruction has a Computer Science Program Specialist.
Require All HS to Offer: SB 5088 (2019) required that each school district that operates a high school must provide access to an elective computer science course by the 2022–2023 school year. SB 5657 (2022) requires each school district operating an institutional education program for youth in state long-term juvenile institutions to provide an opportunity to access an elective computer science course.
Grad Credit/Requirement: In Washington, a computer science course that aligns to the state computer science learning standards can count as the third required mathematics credit or science credit for graduation.
Higher Ed Admission: AP Computer Science A can count as a mathematics credit required for admission at institutions of higher education in Washington.

WA is a member of the ECEP Alliance, has four regional CSTA chapters, and Governor Jay Inslee is co-chair of the Governors' Partnership for K–12 Computer Science.

Wisconsin (WI)

Standards: Wisconsin adopted K–12 computer science standards in 2017.
Certification: In Wisconsin, teachers with existing licensure can obtain a 4–12 supplementary license by passing the Praxis CS exam. An initial license in computer science requires completing a state-approved preparation program.
Preservice Incentives: The Wisconsin Department of Public Instruction has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
State CS Supervisor: The Wisconsin Department of Public Instruction is currently in the process of hiring a Computer Science and Digital Learning Innovation Consultant.
Require All HS to Offer: Although Wisconsin does not yet require that all secondary schools offer computer

science, state statute 118.01(2)(a)5 requires each school board to provide an instructional program designed to give students knowledge in computer science, including problem-solving, computer applications, and the social impact of computers.
Grad Credit/Requirement: In Wisconsin, computer science courses that meet the department's definition of computer science can count as a mathematics credit for graduation.

West Virginia (WV)

State Plan: The West Virginia Department of Education approved a state plan for expanding Computer Science in October 2019.
Standards: West Virginia adopted K–12 computer science standards in 2019.
Funding: Since 2019, WV has allocated $2.4M for CS.
Certification: In West Virginia, teachers with existing licensure can obtain course-specific authorizations for Introduction to Computer Science, Computer Science Discoveries, and/or Computer Science Fundamentals by completing specified professional development.
State CS Supervisor: The West Virginia Department of Education has a Computer Science Supervisor.
Require All HS to Offer: SB 267/HB 2415 (2019) required the West Virginia State Board of Education to adopt a policy detailing the appropriate level of computer science instruction that shall be available to students at each programmatic level prior to the 2020–2021 school year. Policy 2510, revised in 2015, required all high schools to offer a computer science course.
Grad Credit/Requirement: In West Virginia, an AP computer science course can count as the fourth mathematics credit or a science credit for graduation.

WV has a statewide CSTA chapter.

Wyoming (WY)

State Plan: The Wyoming Department of Education created a task force in 2017 to develop and implement a long-term plan for expanding computer science.
Standards: Wyoming adopted K–12 computer science standards in February 2020.
Funding: Although Wyoming does not yet provide dedicated state funding, the Wyoming Trust Fund for Innovative Education prioritized computer science applications in 2018–2021.
Certification: In Wyoming, teachers with existing licensure can obtain a K–12 endorsement by completing a program that leads to licensure or a combination of coursework and passing the Praxis CS exam. Another pathway requires coursework and work experience. Teachers can teach out of field for up to two years and can earn the CS endorsement by passing the Praxis CS exam within those two years.
State CS Supervisor: The Wyoming Department of Education has a Math and Computer Science Consultant.
Require All HS to Offer: SF 29 (2018) required all schools to include computer science and computational thinking by the 2022–2023 school year.
Grad Credit/Requirement: In Wyoming, computer science courses aligned with the standards can count as a science credit for graduation.
Higher Ed Admission: Computer science can count as one year of science, fourth year mathematics (for state scholarship), or career credits required for admission at institutions of higher education, which aligns with the high school graduation policy.

WY has a statewide CSTA chapter.

Policy Rubrics

State Plan for K–12 Computer Science Education

A state is considered to have a plan for K–12 computer science education if the plan meets all four of the following criteria:

- Developed by a state education agency;
- Specific to computer science education;
- Includes a timeline, goals, and strategies for achieving the goals; and
- The plan is publicly accessible.

K–12 Computer Science Standards

A state is considered to have K–12 computer science standards if the standards meet both of the following criteria:

- Form a coherent progression that aligns elementary, middle, and high school expectations; and
- Are publicly accessible on the state's website.

State-Level Funding for K–12 Computer Science Professional Learning

A state is considered to have dedicated state-level funding to K–12 computer science professional learning if the funding meets all three of the following criteria:

- The funds are allocated via the approved state budget or state legislation;
- A description of the funds is publicly accessible; and
- The state has allocated funds to computer science during the last two fiscal years. If the state does not meet the last criteria (allocating funds within the last two fiscal years) but previously allocated funds, and over 75% of its high schools offer computer science, then the state is considered to have met the rubric.

State Computer Science Certification

A state is considered to have computer science teacher certification if the certification (or endorsement, licensure, or authorization) meets both of the following criteria:

- Explicitly names "computer science" or has a related name (e.g., computer programming); and
- Enables a teacher to teach computer science courses.

State-Approved Preservice Teacher Preparation at Institutions of Higher Education

A state is considered to have approved preservice teacher preparation in computer science at institutions of higher education if any of the following criteria are met:

- The state requires all preservice teachers (from any subject) be exposed to computer science content and/or pedagogy within a teacher's preservice program;
- The state provides scholarships for preservice teachers to take computer science;
- The state provides funds to teacher preparation institutions to establish preservice computer science education programs; or
- The state approves programs at institutions of higher education that prepare preservice teachers to teach computer science and lists those programs publicly

Note that each of the above criteria involves a state-led effort; individual, university-led programs are not sufficient for qualification.

State-Level Computer Science Supervisor

A state is considered to have a state-level computer science supervisor if the position meets all three of the following criteria:

- Is part of a state agency;
- Has a title that reflects a focus on K–12 computer science; and
- Is clearly able to develop state policy/regulations and create programs around computer science.

A Requirement for All High Schools to Offer Computer Science

A state is considered to require all high schools to offer computer science if the policy meets both of the following criteria:

- Requires all public high schools in the state to offer one or more computer science courses; and
- Provides public access to a description of the requirement.

Computer Science Can Satisfy a Core High School Graduation Requirement

A state is considered to allow computer science to count toward a core graduation requirement if the policy meets both criteria:

- Allows computer science to satisfy a core graduation requirement (not an elective) for a subject such as mathematics, science, technology, or a language other than English; and
- Provides public access to a description of the policy.

Computer Science Can Satisfy a Core Admission Requirement at Institutions of Higher Education

A state is considered to allow computer science to count toward a core admission requirement if the policy meets both criteria:

- Allows computer science to satisfy one of the core credits for entry (not an elective); and
- Provides public access to a description of the policy.

Appendix 2: **Computer Science Access and Participation Methodology**

9–12 Computer Science Access Report Methodology

The high school data set includes 100% of all public and public charter high schools from every state and D.C. Based on this data, at least 13,883 public high schools in the U.S. offer foundational computer science (there are 26,160 public high schools in the nation). Data was collected between spring and summer 2022 for the most recent school year with available data.

The majority of high school data was collected from state education agencies through direct collaboration or via requests submitted through an online portal. State-provided data included school IDs, course codes, course descriptions, and course enrollment. For states without this information in their data systems, data was collected for each school through a combination of approaches, including direct contact with school employees and school course catalogs. The main source(s) of data for each state are included in Appendix 3. State education agencies and organizations interested in providing statewide course offerings and enrollment data should contact accessreport@code.org. School-level computer science course offerings can be found and/or submitted at https://code.org/yourschool.

School IDs were cross-referenced with data from the U.S. Department of Education to determine each school's geography (urban, suburban, or rural), the percentage of students from each race or ethnicity, the percentage of students who are economically disadvantaged (defined as students who are eligible for free and reduced-price meals under the National School Lunch Program), the percentage of students qualifying for special education services under the Individuals with Disabilities Education Act (IDEA) or section 504 of the Rehabilitation Act, and the percentage of students identified as English language learners.

Data Sources

Data	Data Source
Total schools in the U.S.	NCES Common Core of Data (CCD) Public Elementary/ Secondary School Universe Survey (2020-21), generated from the ElSi Table Generator
School characteristics (grades offered)	
Student demographics (race/ethnicity)	
School enrollment	
Percentage of students who qualify for free and reduced-price meals programs (per school)	
School locale code/geography	NCES Education Demographic and Geographic Estimates (2020-21–20)
Percentage of students who qualify for services under IDEA	NCES Digest of Education Statistics Table 204.70 (2019–20)
Percentage of students who qualify for services under Section 504 of the Rehabilitation Act	Civil Rights Data Collection School-Level Data (2017–18)
Percentage of students identified as English language learners	NCES Digest of Education Statistics Table 204.20 (fall 2019)
Percentage of students who qualify for free and reduced-price meals programs (statewide)	NCES Digest of Education Statistics Table 204.10 (2019-20)
Percentage of students identified as economically disadvantaged (DE, MA,MD, MS NY, OR, UT, and WV only)	State education agencies; only for states that do not report on computer science course enrollment by FRM eligibility
Course codes	School Courses for the Exchange of Data (SCED), state education agency course catalogs, and local course catalogs
Course offerings per school	• State education agencies; • National or state-specific organizations (e.g., the College Board, Technology Education and Literacy in Schools (TEALS), Project Lead The Way, Kapor Center, and BootUp); • District/school course catalogs or direct contact with school employees (including the Sacramento County Office of Education); and • Survey responses from teachers, administrators, and parents at code.org/yourschool
Course enrollment, including demographics	State education agencies and the University of Texas at Austin

High Schools

For the school list, we use the 2019–20 NCES list of schools that enroll students in at least one high school grade (9–12) and remove schools that have since closed, do not offer academic courses, or serve transient populations (e.g., specialized programs or some juvenile detention centers), and CTE centers that are co-located with a high school.

Courses

The Access Report describes the prevalence of foundational computer science, a subset of all computer science courses. The operating definition of "a course that teaches foundational computer science" is based on the definition of computer science by the Computer Science Teachers Association and the K–12 Computer Science Framework: Computer science is the study of computers and algorithms, including their principles, their hardware and software designs, their implementation, and their impact on society. High school courses must be offered during the school day and include at least 20 hours of programming to count as foundational computer science.

We examined the SCED and state-level course catalogs for the current year to identify courses (including CTE courses) that met the definition of foundational computer science, in consultation with the state education agency. If the course title does not explicitly include "computer science," then the course descriptions must include instruction in the fundamentals of a programming language.

The lists of courses vary slightly from year to year, as new courses are added to or deleted from course catalogs, new state course descriptions fit the definition, or local courses are identified by individual schools as meeting the definition. Course lists differ slightly for each state based on state course descriptions (e.g., for some states, robotics course descriptions include programming). Virtual offerings available to students across the state are only counted if they are listed on a school's course catalog.

Data Carryover

Each year, unless new data is provided, it is inferred that if a school offered computer science in the previous year, the school is still offering computer science. This ensures any data obtained from a school course catalog or survey (and not reported from the state education agency or a national organization) is carried forward to the new year. This data is only carried over for a maximum of two years before it is replaced with new data.

K–8 Data

Several state education agencies provided data on elementary and middle school computer science offerings and enrollment. For grades K–8, access and participation data only includes courses that take place during the school day and include at least 10 hours of programming. A school is included in the middle school data set if it offers at least one of the 6–8 grades. A school is included in the elementary school data set if it offers at least one of the K–5 grades. Thus, schools that offer grade levels in multiple bands (e.g., K–8 or K–12) are included in multiple data sets. Although this report has chosen to classify grade 6 as a middle school grade, some schools and states consider it to be an elementary school grade.

The percentage of schools offering computer science in grades K–8 includes 19 states in which the state education agencies provided grades 6–8 course code data. Also included is K–5 course code data from eight state education agencies (FL, GA, HI, IN, MA, MD, OK, TN).

The K–5 and 6–8 computer science enrollment data sets only include information related to course codes provided by the state education agency; this does not include enrollment from schools identified as offering computer science from survey data or provider data. Enrollment data as reported here is likely lower than actual enrollment due to several factors. Overall participation is compared to the total enrollment in the school, and thus may appear to be lower in schools with other grade bands. Participation data does not include masked data due to low numbers. We also know that many elementary schools offer integrated computer science, which may not be reflected in the course code and enrollment data reported to the state.

Changes to the Access Report

This year, the Access Report has changed terminology to report on schools that offer foundational computer science rather than schools that teach foundational computer science. This change aligns the terminology used in data collection to whether a course is on the school catalog, not whether students are enrolled in the course.

The full Access Report data set for this report year is now available for the public to view, filter, and download at **code.org/yourschool/accessreport**.

Disparity Index Methodology

A disparity index[37] is used to quantify the difference in access and participation for each underrepresented racial and ethnic group. It compares the ratios of students from specific populations underrepresented in computer science to populations overrepresented in computer science. An example of a disparity index formula for Native American/Alaskan student participation is:

$$\frac{\left(\text{number of white and Asian students who took the exam} \div \text{number of white and Asian students in the school population}\right)}{\left(\text{number of Native American/Alaskan students who took the exam} \div \text{number of Native American/Alaskan students in the school population}\right)}$$

The disparity index for participation is computed by dividing the rate of participation for one demographic group by the rate of participation for another demographic group. The rate of participation is calculated by dividing the number of participating students for a given group by the total number of students of that group who attend schools that offer foundational computer science. The disparity index for access is calculated by comparing the rate of access for each demographic group, which is the ratio of the number of students of a demographic who attend schools that offer foundational computer science compared to the total number of students of that demographic in the state. The disparity index is used to describe the disparity in access or participation for each underrepresented racial and ethnic group (e.g., Hispanic/Latina/Latino/Latinx students are 1.4 times less likely to enroll in computer science as their white and Asian peers, even when they attend a school that offers it). White and Asian students are overrepresented in computer science, and so these populations of students are used to calculate the disparity in access and participation for each underrepresented racial and ethnic group. Statewide and school demographics are from the National Center for Education Statistics (NCES). AP data is used for states that do not have participation data in foundational computer science.

[37] Warner, J. R., Childs, J., Fletcher, C. L., Martin, N. D., & Kennedy, M. (2021), Quantifying disparities in computing education: Access, participation, and intersectionality

Appendix 3: **Computer Science Access and Participation Data Tables**

All data included in this appendix and additional data (including total numbers of schools and numbers in each category) can be downloaded from advocacy.code.org/stateofcs.

Percentage of High Schools Offering CS by School Year

States	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22	Primary data source
US*	**-**	**35%**	**45%**	**47%**	**51%**	**53%**	-
AK	-	-	19%	32%	42%	51%	School catalogs
AL	-	39%	49%	57%	82%	85%	State Education Agency
AR	-	64%	78%	89%	92%	92%	State Education Agency
AZ	-	-	-	38%	36%	-	State Education Agency
CA*	45%	47%	40%	-	-	-	State Education Agency in partnership with the Kapor Center, Sacramento County Office of Education, and school catalogs
CO	-	38%	-	-	57%	-	State Education Agency
CT	-	-	67%	82%	77%	-	State Education Agency
DC	-	-	20%	41%	37%	45%	School catalogs
DE	-	-	65%	68%	55%	40%	State Education Agency
FL	-	23%	30%	33%	38%	40%	State Education Agency
GA	-	50%	52%	55%	61%	66%	State Education Agency
HI*	-	47%	57%	62%	72%	77%	State Education Agency and school catalogs
IA	-	49%	58%	66%	64%	71%	State Education Agency
ID	-	-	-	38%	40%	38%	State Education Agency
IL	-	37%	45%	43%	44%	-	State Education Agency
IN	-	51%	62%	72%	74%	85%	State Education Agency
KS	-	26%	28%	27%	-	40%	State Education Agency
KY	-	39%	-	45%	51%	63%	State Education Agency
LA	-	15%	23%	23%	29%	32%	School Catalogs
MA	58%	67%	75%	82%	78%	-	State Education Agency
MD	-	62%	83%	90%	92%	98%	State Education Agency
ME*	-	-	-	56%	60%	-	State Education Agency and school catalogs
MI	-	-	-	37%	44%	46%	School Catalogs
MN	-	-	19%	24%	21%	-	State Education Agency and school catalogs
MO	-	32%	38%	50%	49%	-	State Education Agency
MS	-	28%	47%	48%	65%	60%	State Education Agency
MT	-	25%	31%	36%	37%	36%	State Education Agency
NC	-	45%	-	51%	59%	61%	State Education Agency
ND	-	23%	41%	44%	43%	44%	State Education Agency
NE	-	40%	44%	46%	52%	-	State Education Agency
NH	-	-	49%	67%	78%	82%	School catalogs
NJ	-	59%	67%	68%	67%	-	State Education Agency
NM	-	-	23%	32%	44%	41%	State Education Agency
NV	-	-	57%	77%	83%	83%	State Education Agency, school catalogs, and school survey data
NY	38%	44%	48%	50%	48%	-	State Education Agency
OH	-	-	42%	50%	48%	-	State Education Agency and school catalogs
OK	-	29%	-	37%	53%	62%	State Education Agency
OR	31%	37%	54%	-	63%	-	State Education Agency and school catalogs
PA	-	56%	59%	-	77%	-	State Education Agency
RI	85%	86%	86%	86%	86%	-	State Education Agency
SC	-	43%	69%	80%	92%	93%	State Education Agency
SD*	-	-	-	38%	39%	-	State Education Agency and school catalogs
TN	-	-	-	50%	54%	60%	State Education Agency
TX	-	-	46%	49%	47%	-	State Education Agency and the University of Texas at Austin (for enrollment data)
UT	-	58%	66%	70%	74%	73%	State Education Agency
VA	63%	66%	73%	73%	-	75%	State Education Agency
VT	-	-	27%	60%	64%	76%	State Education Agency and school catalogs
WA	-	33%	43%	49%	-	47%	State Education Agency
WI*	-	34%	42%	52%	66%	-	State Education Agency and school catalogs
WV	-	-	46%	75%	76%	78%	State Education Agency
WY	-	-	36%	41%	50%	55%	State Education Agency

*U.S.: Overall data for each report year is based on the most recent data from each state. 2017–18 data is from 24 states; 2018–19 data is based on 39 states.

*CA: Decrease may be due to course code changes in SY 2017–18

*HI: Data includes public DOE and public charter schools

*ME, SD, WI: Re-reporting last year's number with some additional data

Percentage of Schools in Each Category That Offer CS

(for the most recent school year reported)

States	Urban	Suburban	Rural	Less than 24% of students qualify for FRL	Greater than 75% of students qualify for FRL
US	**47%**	**60%**	**50%**	**57%**	**39%**
AK	55%	100%	50%	51%	46%
AL	90%	92%	84%	85%	82%
AR	89%	95%	93%	100%	88%
AZ	39%	51%	27%	35%	20%
CA	42%	47%	29%	51%	33%
CO	59%	61%	56%	66%	48%
CT	65%	85%	79%	95%	40%
DC	46%	n/a	n/a	45%	n/a
DE	n/a	41%	63%	40%	n/a
FL	39%	45%	34%	32%	30%
GA	63%	77%	59%	75%	51%
HI	73%	89%	72%	83%	83%
IA	62%	76%	72%	77%	33%
ID	56%	36%	35%	42%	22%
IL	51%	58%	34%	63%	39%
IN	76%	91%	89%	94%	50%
KS	56%	55%	36%	55%	33%
KY	61%	71%	63%	47%	46%
LA	41%	42%	27%	44%	16%
MA	71%	79%	81%	78%	n/a
MD	100%	96%	98%	100%	90%
ME	89%	81%	55%	78%	n/a
MI	41%	46%	48%	66%	25%
MN	12%	18%	25%	25%	9%
MO	53%	69%	45%	69%	38%
MS	91%	71%	59%	50%	56%
MT	78%	100%	33%	46%	28%
NC	62%	71%	58%	74%	44%
ND	70%	75%	42%	50%	15%
NE	90%	100%	48%	55%	67%
NH	73%	83%	84%	87%	n/a
NJ	44%	71%	68%	79%	44%
NM	37%	30%	45%	46%	33%
NV	85%	96%	80%	70%	86%
NY	39%	69%	46%	58%	33%
OH	22%	57%	55%	42%	42%
OK	72%	80%	60%	85%	51%
OR	77%	74%	59%	58%	54%
PA	61%	86%	76%	74%	67%
RI	81%	94%	67%	100%	81%
SC	88%	95%	95%	91%	88%
SD	65%	100%	36%	40%	32%
TN	63%	85%	53%	57%	20%
TX	48%	62%	43%	54%	41%
UT	69%	74%	76%	86%	45%
VA	71%	81%	73%	83%	60%
VT	100%	100%	73%	100%	n/a
WA	44%	54%	49%	41%	46%
WI	52%	75%	68%	68%	44%
WV	100%	92%	74%	100%	n/a
WY	70%	n/a	56%	52%	n/a

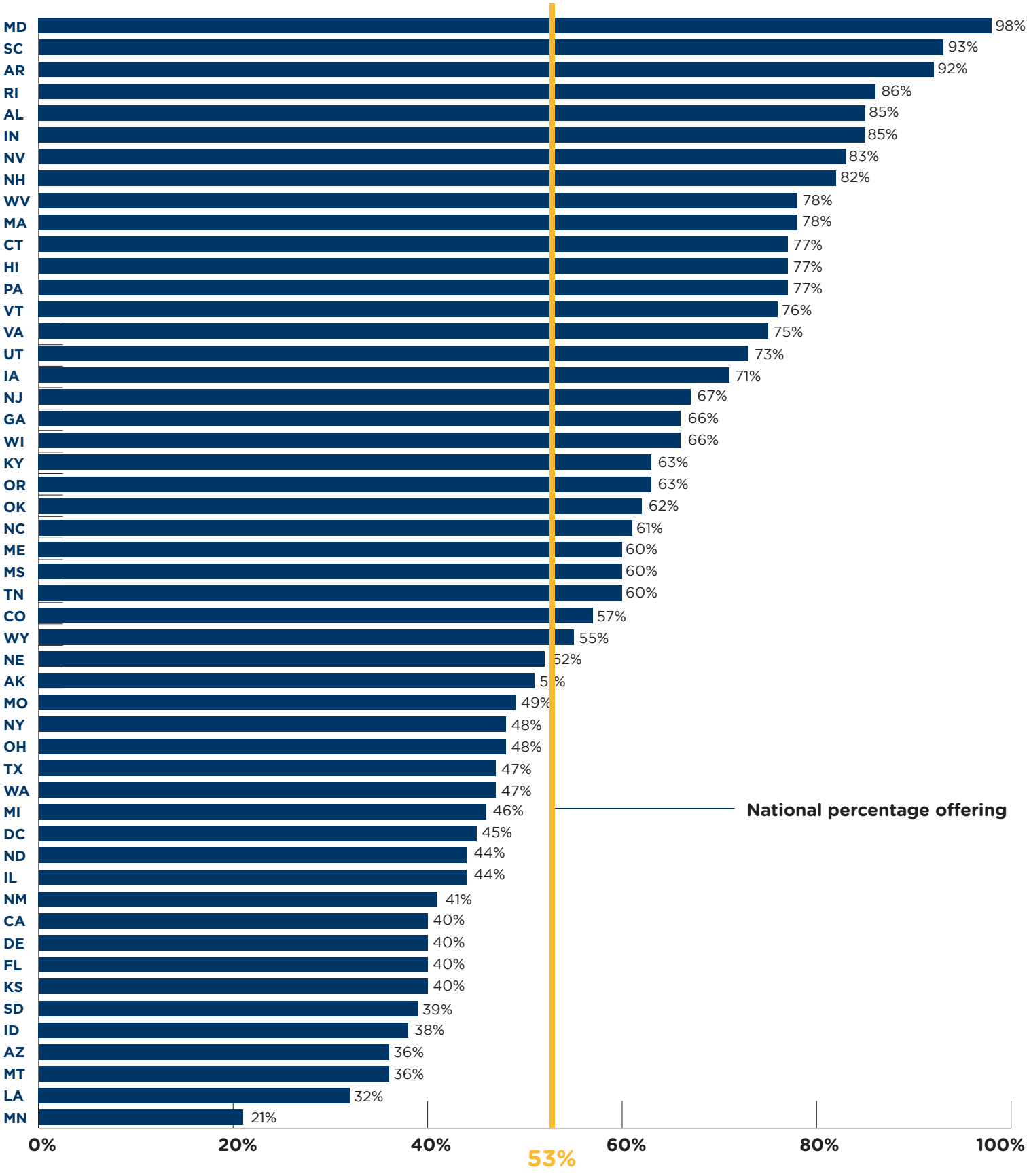
Students Who Attend a School That Offers CS

(for the most recent school year reported)

States	Overall % student access	Black/African American	Hispanic/Latina/ Latino/Latinx*	Native American/ Alaskan	Native Hawaiian/ Pacific Islande	White	Asian	Two or more races
US	**74.9%**	**69.7%**	**73.2%**	**59.3%**	**80.8%**	**76.4%**	**85.7%**	**76.0%**
AK	71.3%	71.9%	75.8%	57.6%	76.6%	76.8%	79.9%	75.5%
AL	86.7%	86.1%	91.6%	91.7%	88.6%	86.1%	92.1%	86.7%
AR	90.3%	87.8%	90.8%	89.7%	98.0%	90.9%	87.5%	90.2%
AZ	65.1%	63.5%	63.7%	39.1%	63.4%	69.2%	77.3%	61.8%
CA	75.1%	70.6%	71.4%	60.6%	76.1%	78.1%	88.3%	77.5%
CO	77.4%	78.7%	69.9%	73.6%	79.4%	81.1%	88.0%	82.1%
CT	85.2%	75.7%	77.9%	78.3%	82.2%	90.6%	95.7%	86.6%
DC	57.1%	51.0%	67.4%	51.4%	40.0%	76.1%	71.7%	62.3%
DE	59.9%	53.2%	51.0%	50.2%	53.6%	67.0%	68.0%	58.4%
FL	75.2%	71.2%	76.4%	68.7%	80.1%	75.7%	84.4%	74.4%
GA	85.3%	82.9%	85.5%	85.5%	82.1%	86.2%	95.0%	87.9%
HI	90.2%	93.3%	92.7%	83.4%	83.4%	90.0%	95.8%	91.2%
IA	78.8%	77.6%	73.9%	59.2%	77.7%	79.6%	81.8%	78.2%
ID	64.9%	75.8%	64.4%	44.8%	68.3%	65.0%	77.6%	62.4%
IL	83.5%	78.4%	89.7%	87.4%	88.9%	80.2%	95.9%	84.6%
IN	91.7%	88.9%	89.8%	91.4%	94.1%	92.4%	93.7%	92.2%
KS	61.0%	68.1%	64.9%	48.3%	63.1%	58.7%	72.1%	63.4%
KY	93.8%	94.2%	94.4%	92.6%	93.7%	93.7%	96.6%	92.0%
LA	45.8%	47.9%	45.2%	37.0%	44.5%	43.8%	63.7%	42.0%
MA	84.7%	80.1%	77.1%	84.6%	88.3%	87.8%	90.7%	84.4%
MD	94.2%	91.1%	92.0%	94.4%	96.2%	97.3%	97.6%	96.4%
ME	85.2%	95.8%	86.5%	77.2%	94.3%	84.5%	93.0%	88.5%
MI	74.0%	62.4%	75.5%	67.0%	71.9%	76.3%	84.4%	74.1%
MN	43.5%	38.5%	42.8%	37.6%	59.1%	43.5%	52.7%	44.4%
MO	69.0%	65.8%	69.5%	63.8%	73.8%	69.2%	80.0%	71.1%
MS	71.0%	69.5%	75.5%	23.9%	76.3%	72.7%	73.0%	71.2%
MT	62.9%	77.3%	70.6%	53.2%	56.4%	63.5%	72.4%	63.9%
NC	75.6%	72%	75.6%	34.5%	71.2%	77.7%	87.9%	74.8%
ND	63.8%	81.4%	59.0%	30.7%	67.1%	67.7%	84.5%	69.6%
NE	79.0%	96.2%	85.5%	59.9%	87.5%	74.8%	96.2%	88.6%
NH	89.1%	77.8%	88.7%	78.8%	96.0%	89.5%	88.8%	88.4%
NJ	85.2%	75.9%	76.4%	84.8%	87.0%	92.9%	94.6%	90.3%
NM	63.1%	66.1%	61.0%	58.7%	71.0%	69.5%	76.8%	74.5%
NV	95.1%	96.5%	95.8%	92.0%	97.8%	93.3%	96.8%	95.5%
NY	64.0%	51.0%	59.6%	56.0%	61.5%	70.1%	74.9%	67.4%
OH	53.4%	38.1%	43.1%	48.5%	42.2%	58.5%	59.0%	48.4%
OK	81.5%	83.0%	82.1%	74.7%	88.4%	82.1%	93.4%	82.6%
OR	86.6%	90.2%	86.4%	65.4%	92.1%	86.5%	93.1%	87.3%
PA	87.9%	74.5%	86.2%	86.9%	88.1%	91.2%	90.3%	87.7%
RI	93.3%	88.6%	90.2%	93.4%	95.7%	95.5%	95.7%	93.8%
SC	95.8%	97.4%	95.9%	96.5%	96.3%	94.9%	97.9%	95.0%
SD	79.2%	92.9%	92.2%	49.2%	89.4%	84.9%	94.7%	88.4%
TN	75.5%	72.8%	75.5%	77.7%	80.1%	75.8%	85.4%	81.3%
TX	73.6%	76.2%	72.7%	71.7%	76.9%	72.4%	83.4%	74.2%
UT	90.9%	83.8%	86.7%	85.8%	86.9%	92.2%	88.1%	89.8%
VA	87.3%	80.5%	91.4%	86.3%	92.1%	87.5%	95.2%	88.9%
VT	83.2%	91.8%	87.3%	76.2%	85.4%	82.6%	92.1%	84.2%
WA	82.8%	82.1%	83.8%	54.5%	87.7%	81.8%	90.6%	83.9%
WI	88.6%	75.9%	87.3%	81.2%	86.9%	90.3%	94.0%	88.7%
WV	86.0%	93.2%	95.1%	74.7%	93.2%	85.3%	95.7%	90.8%
WY	79.3%	84.1%	80.7%	67.4%	80.9%	79.4%	86.2%	79.5%

*Hispanic/Latina/Latino/Latinx: Some states and the NCES collect data and report on Hispanic/Latina/Latino/Latinx students differently. Ethnicity and race may be asked simultaneously or in a two-part question. Students who select Hispanic and an additional race may be included in either the Hispanic counts or in the two or more races counts.

Percentage of High Schools Offering Computer Science, by State*



*for the most recent school year reported by each state

High School Enrollment in Foundational Computer Science Courses

(for the most recent school year reported)

States	Total enrollment	% Student population in CS	Gender			Race/ethnicity							Other demographics			
			Male	Female	Another/Non-binary	Black/African American	Hispanic/Latina/Latino/Latinx	Native American/Alaskan	Native Hawaiian/Pacific Islander	White	Asian	Two or more races	English language learners	Economically disadvantaged students	Students with 504 plans	Students under IDEA
US	**626,132**	**6%**	**68%**	**32%**	**0.03%**	**16%**	**20%**	**1%**	**0.3%**	**48%**	**11%**	**4%**	**6%**	**36%**	**5%**	**8%**
AL	14,954	6%	61%	40%	0.0%	29%	9%	3%	0.2%	53%	3%	3%	3%	40%	n/a	7%
AR	13,497	7%	70%	30%	0.0%	19%	12%	0.6%	0.3%	61%	4%	3%	5%	58%	8%	9%
AZ	8,304	2%	78%	21%	0.0%	6%	41%	2%	0.00%	41%	5%	4%	3%	45%	n/a	10%
CT	8,960	5%	76%	24%	n/a	11%	19%	0.1%	0.1%	54%	12%	3%	4%	31%	n/a	9%
DE	2,106	4%	73%	27%	0.0%	27%	12%	0.5%	0.2%	44%	12%	4%	4%	13%	n/a	10%
FL	25,669	3%	71%	29%	0.0%	14%	30%	0.3%	0.2%	41%	11%	4%	2%	34%	5%	6%
GA	19,866	4%	71%	29%	0.0%	32%	12%	0.3%	0.1%	34%	18%	4%	3%	n/a	n/a	7%
HI	2,247	4%	76%	24%	0.0%	1%	13%	0.0%	14%	13%	43%	15%	3%	29%	5%	7%
IA	7,069	4%	80%	20%	0.0%	4%	9%	0.4%	0.2%	77%	6%	4%	2%	30%	6%	7%
ID	1,779	1%	73%	24%	0.0%	1%	17%	0.3%	0.0%	76%	4%	3%	3%	15%	7%	5%
IN	21,236	6%	78%	22%	0.0%	12%	12%	0.2%	0.1%	66%	5%	5%	3%	38%	4%	12%
KS	4,744	3%	85%	15%	0.0%	5%	18%	0.2%	0.0%	64%	9%	4%	n/a	33%	n/a	6%
KY	21,365	10%	71%	29%	0.0%	11%	7%	0.2%	0.1%	74%	4%	3%	4%	54%	n/a	10%
LA	4,578	2%	61%	39%	0.0%	49%	6%	0.0%	0.0%	39%	5%	1%	1%	37%	n/a	6%
MA	19,148	6%	71%	28%	0.1%	9%	15%	0.3%	0.1%	57%	15%	4%	3%	25%	n/a	10%
MD	39,357	14%	56%	42%	0.0%	35%	14%	0.1%	0.0%	34%	12%	4%	5%	24%	5%	8%
MO	9,235	3%	75%	25%	n/a	12%	6%	0.0%	0.0%	74%	5%	3%	2%	40%	n/a	8%
MS	10,005	7%	53%	47%	0.0%	49%	4%	0.2%	0.0%	43%	1%	3%	3%	n/a	1%	11%
NE	3,750	4%	82%	18%	0.0%	5%	13%	0.7%	0.2%	73%	5%	3%	2%	31%	4%	11%
NJ	41,528	9%	69%	31%	0.0%	11%	20%	0.1%	0.3%	43%	26%	n/a	2%	21%	n/a	10%
NM	2,963	3%	70%	30%	0.0%	1%	53%	11%	0.0%	28%	3%	3%	11%	54%	2%	11%
NV	5,858	4%	66%	34%	0.0%	7%	39%	0.6%	1%	30%	15%	7%	7%	82%	3%	5%
NY	32,248	3%	69%	31%	0.0%	13%	18%	0.7%	0.4%	44%	21%	2%	3%	44%	n/a	n/a
OK	9,379	5%	63%	37%	0.0%	5%	16%	14%	0.4%	51%	3%	10%	5%	38%	3%	16%
OR	14,654	7%	75%	24%	0.0%	2%	18%	1%	0.4%	63%	9%	7%	2%	46%	n/a	11%
SC	64,648	26%	53%	47%	0.0%	30%	10%	3%	0.6%	49%	2%	4%	11%	59%	0.1%	11%
TN	13,786	4%	71%	29%	0.0%	21%	9%	1%	0.4%	53%	5%	11%	5%	27%	2%	9%
TX	111,717	6%	73%	27%	0.0%	9%	42%	0.2%	0.1%	28%	17%	3%	10%	44%	8%	6%
UT	29,832	10%	68%	32%	0.03%	1%	20%	1%	1%	70%	3%	3%	7%	n/a	4%	11%
VA	25,649	6%	68%	32%	0.02%	17%	13%	0.2%	0.1%	46%	17%	6%	8%	32%	4%	8%
VT	905	3%	71%	30%	0.0%	2%	2%	0.4%	0.3%	89%	3%	3%	0.7%	35%	10%	15%
WA	15,045	4%	74%	25%	1.0%	4%	16%	0.6%	0.6%	50%	21%	8%	6%	33%	7%	8%
WI	12,912	5%	77%	23%	0.0%	8%	11%	1.3%	0.0%	71%	6%	3%	3%	29%	3%	10%
WV	4,357	5%	66%	34%	0.0%	2%	0%	0.0%	0.0%	95%	1%	2%	0%	44%	3%	12%
WY	1,124	4%	75%	25%	0%	0%	13%	6%	0.2%	77%	1%	2%	1%	25%	4%	8%

Overall High School and K–12 Population Demographics

(for comparison purposes)

States	High school population by race/ethnicity							Other demographics (K–12 student population)			
	Black/African American	Hispanic/ Latina/ Latino/Latinx	Native American/ Alaskan	Native Hawaiian/ Pacific Islander	White	Asian	Two or more races	English language learners	Economically disadvantaged students*	Students with 504 plans	Students under IDEA
US	**15%**	**27%**	**1%**	**0%**	**48%**	**5%**	**4%**	**10.40%**	**52.10%**	**2.70%**	**14.40%**
AK	1.95%	5.59%	28.07%	2.06%	48.34%	3.87%	10.12%	12%	42.90%	1.50%	14.60%
AL	29%	8%	1%	0%	58%	1%	2%	4.40%	55%	n/a	13.10%
AR	19%	14%	1%	1%	61%	2%	3%	8.20%	65.50%	4.00%	15.40%
AZ	5%	43%	5%	0%	39%	4%	3%	6.60%	51.20%	n/a	13.30%
CA	5.35%	54.11%	0.53%	0.45%	23.58%	11.53%	4.44%	18.60%	59.40%	1.40%	12.00%
CO	4.26%	33.59%	0.67%	0.27%	53.64%	3.39%	4.18%	11%	40.70%	2.30%	11.90%
CT	15%	26%	0%	0%	51%	5%	3%	8.30%	42.70%	n/a	16.40%
DC	66.75%	20.33%	0.17%	0.05%	8.99%	1.56%	2.16%	12.30%	76.40%	2%	16.60%
DE	29%	17%	1%	0%	44%	5%	4%	11.10%	28.30%	n/a	19.00%
FL	21%	33%	0%	0%	38%	3%	4%	10%	53.90%	3.40%	14.70%
GA	36%	16%	0%	0%	39%	4%	4%	7.50%	n/a	n/a	12.80%
HI	1%	12%	0%	31%	12%	31%	12%	9.90%	45.50%	2.30%	11.20%
IA	6%	11%	0%	0%	76%	2%	4%	6.50%	42%	1.90%	13.60%
ID	1%	17%	1%	0%	76%	1%	3%	6.90%	37.10%	3.10%	11.70%
IL	16.16%	27.03%	0.23%	0.11%	47.92%	5.25%	3.31%	12.30%	48.4%	3.10%	15.10%
IN	13%	13%	0%	0%	67%	2%	5%	6.60%	48.40%	2.20%	17.30%
KS	6%	20%	1%	0%	65%	3%	5%	n/a	46.60%	n/a	15.70%
KY	11%	7%	0%	0%	76%	2%	4%	4.30%	55.70%	n/a	16.00%
LA	40%	7%	1%	0%	48%	2%	2%	4.30%	56.00%	n/a	12.60%
MA	11%	21%	0%	0%	57%	7%	3%	10.60%	32.80%	n/a	18.70%
MD	34%	18%	0%	0%	36%	7%	4%	10.60%	42%	3.20%	12.60%
ME	3.89%	2.55%	0.79%	0.06%	88.76%	1.58%	2.36%	3.10%	42%	4.90%	19.70%
MI	16.92%	8.19%	0.97%	0.09%	66.77%	3.21%	3.87%	6.50%	50.50%	1.60%	13.40%
MN	10.66%	9.75%	1.96%	0.09%	66.32%	6.31%	4.91%	8.60%	35.80%	1.90%	16.30%
MO	14%	7%	0%	0%	72%	2%	4%	3.90%	50%	n/a	14.50%
MS	45%	4%	1%	0%	48%	1%	2%	2.50%	n/a	0.70%	15.10%
MT	0.88%	5.06%	11.21%	0.25%	78.45%	0.91%	3.24%	2.40%	40.20%	2.30%	13%
NC	24.58%	17.32%	1.09%	0.12%	48.88%	3.32%	4.68%	8%	57.80%	1.70%	13.20%
ND	4.19%	5.08%	11.88%	0.22%	74.39%	1.39%	2.85%	3.70%	30.20%	2.30%	14.50%
NE	6%	19%	1%	0%	67%	3%	4%	7.40%	45.60%	1.20%	16.10%
NH	2.30%	5.81%	0.25%	0.09%	84.77%	3.43%	3.35%	2.80%	24.70%	6.30%	17.20%
NJ	17%	30%	0%	0%	41%	10%	2%	7.30%	38.20%	n/a	17.70%
NM	2%	60%	12%	0%	22%	1%	2%	16.50%	71.90%	1.00%	16.50%
NV	11%	42%	1%	2%	31%	6%	6%	14.50%	64.60%	1.60%	12.80%
NY	18%	27%	1%	0%	42%	9%	2%	8.90%	56.10%	n/a	19.90%
OH	17.47%	6.32%	0.13%	0.09%	68.44%	2.42%	5.12%	3.60%	45.50%	2.80%	16.40%
OK	8%	18%	13%	0%	49%	2%	10%	9.10%	59.10%	1.50%	16.70%
OR	2%	22%	1%	1%	63%	4%	6%	9.10%	47.90%	n/a	14.90%
PA	14.92%	12.44%	0.17%	0.09%	64.53%	4.03%	3.82%	4.20%	50.70%	2.40%	19.80%
RI	9.10%	27.61%	0.75%	0.15%	55.64%	2.89%	3.86%	12.20%	47.70%	3.70%	17.20%
SC	31%	11%	0%	0%	52%	2%	4%	6%	63.20%	2.30%	13.90%
SD	2.88%	5.75%	18.63%	0.10%	67.50%	1.56%	3.57%	12.20%	47.70%	3.70%	17.20%
TN	21%	11%	0%	0%	63%	2%	3%	5.10%	58.80%	1.70%	13.20%
TX	12%	52%	0%	0%	28%	5%	2%	19.60%	60.20%	6.00%	10.80%
UT	1%	18%	1%	2%	74%	2%	3%	8.10%	n/a	1.60%	12.90%
VA	21%	16%	0%	0%	49%	8%	5%	9.20%	45.10%	2.10%	13.90%
VT	2%	2%	0%	0%	89%	2%	3%	2.20%	35.10%	5.50%	18.00%
WA	4%	23%	2%	1%	54%	8%	8%	11.70%	43.90%	2.90%	13.50%
WI	9%	12%	1%	0%	70%	4%	4%	6.40%	39.70%	1.10%	14.20%
WV	4%	2%	0%	0%	90%	1%	3%	0.80%	51.20%	1.90%	17.80%
WY	1%	14%	4%	0%	78%	1%	3%	2.90%	34.60%	2.20%	17.00%

*AK, CA, CO, DE, DC, IL, MA, ME, ME, MI, MN, MS, MT, NC, ND, NH, NY, OH, OR, PA, RI, SD, UT, and WV report on economically disadvantaged or low-income students.

Access and Participation for AP Computer Science (2020-21)

AP exam participation data includes students attending both public and private schools.
For more data on AP exam participation, including intersectional gender and race/ethnicity data, visit code.org/ap or see Dr. Barbara Ericson's analyses at cs4all.home.blog.

States	Population in schools that offer CS							AP CS exams taken										
									Gender			Race/Ethnicity						
	Black/African American	Hispanic/Latina/Latino/Latinx	Native American/Alaskan	Native Hawaiian/Pacific Islander	White	Asian	Two or more races	Overall	Male	Female	Another/Non-binary	Black/African American	Hispanic/Latina/Latino/Latinx	Native American/Alaskan	Native Hawaiian/Pacific Islander	White	Asian	Two or more Races
US	**13.2%**	**28.0%**	**0.5%**	**0.4%**	**46.0%**	**7.9%**	**3.9%**	**180,921**	**125,117**	**55,334**	**470**	**10,983**	**28,622**	**1,073**	**254**	**74,183**	**49,986**	**74,183**
AK	3.3%	9.0%	8.7%	4.8%	52.5%	8.4%	13.3%	100	80	20	0	1	3	3	0	71	12	9
AL	24.8%	9.2%	1.2%	0.1%	60.4%	2.0%	2.3%	2,399	1,527	852	20	288	169	33	2	1,513	196	127
AR	17.7%	19.0%	0.6%	1.5%	55.2%	2.7%	3.3%	1,406	985	414	7	93	150	15	5	866	166	65
AZ	5.5%	36.4%	2.0%	0.4%	46.1%	6.2%	3.5%	1,587	1,157	421	9	44	336	19	2	648	409	76
CA	5.0%	48.2%	0.4%	0.5%	25.2%	16.0%	4.7%	31,189	21,385	9,738	66	566	6,683	102	91	6,869	13,681	1,769
CO	4.5%	29.1%	0.5%	0.3%	56.7%	4.5%	4.5%	2,584	1,903	674	7	49	338	13	5	1,597	371	165
CT	9.4%	21.2%	0.2%	0.1%	59.7%	6.0%	3.4%	3,251	2,276	968	7	139	331	9	1	1,740	761	141
DC	-	-	-	-	-	-	-	352	227	125	0	124	48	1	0	110	24	23
DE	4.8%	2.7%	0.3%	0.1%	86.9%	3.0%	2.1%	513	400	113	0	71	39	4	0	234	103	32
FL	19.4%	34.1%	0.3%	0.2%	39.0%	3.6%	3.5%	14,864	10,206	4,622	36	1,249	4,512	91	27	5,957	1,937	577
GA	30.1%	17.9%	0.2%	0.1%	41.4%	6.5%	3.8%	7,221	5,085	2,123	13	781	658	35	9	2,922	2,327	301
HI	1.6%	11.2%	0.3%	24.1%	10.6%	39.3%	13.1%	782	546	236	0	3	90	3	21	96	334	212
IA	8.4%	13.0%	0.3%	0.5%	69.4%	4.0%	4.4%	521	395	124	2	25	32	1	0	332	92	23
ID	1.9%	21.2%	0.5%	0.4%	71.0%	1.7%	3.3%	429	318	111	0	3	34	5	1	287	49	20
IL	15.7%	30.3%	0.2%	0.1%	43.1%	7.4%	3.2%	8,572	5,860	2,705	7	474	1,668	37	2	3,285	2,286	344
IN	14.0%	13.5%	0.2%	0.1%	63.5%	3.9%	4.8%	2,883	2,202	671	10	154	261	24	0	1,862	389	112
KS	9.1%	16.7%	0.7%	0.2%	61.6%	5.9%	5.9%	236	200	35	1	6	31	2	1	117	53	15
KY	11.0%	7.4%	0.1%	0.1%	75.1%	2.5%	3.7%	1,462	995	460	7	38	71	13	0	1,029	206	58
LA	34.1%	8.4%	0.2%	0.1%	51.3%	3.5%	2.5%	1,191	766	416	9	203	106	15	2	652	105	65
MA	9.5%	18.4%	0.2%	0.1%	60.7%	7.6%	3.5%	5,451	3,819	1,609	23	361	480	28	4	2,816	1,281	243
MD	30.5%	16.6%	0.2%	0.1%	40.1%	8.0%	4.6%	7,662	4,930	2,711	21	963	574	37	5	3,269	2,072	444
ME	3.0%	2.1%	0.6%	0.1%	89.4%	2.3%	2.4%	242	175	66	1	2	18	2	0	165	29	8
MI	11.2%	8.0%	0.6%	0.1%	71.4%	5.0%	3.7%	4,504	3,160	1,337	7	127	222	16	3	3,009	907	112
MN	11.9%	9.9%	0.5%	0.1%	63.3%	9.0%	5.3%	1,432	1,094	331	7	54	61	8	0	813	364	72
MO	14.2%	7.1%	0.4%	0.4%	69.7%	3.3%	4.9%	1,199	928	267	4	74	65	19	1	750	189	65
MS	42.9%	5.0%	0.2%	0.1%	48.0%	1.7%	2.1%	400	269	131	0	69	23	5	0	248	30	16
MT	1.6%	6.0%	6.5%	0.3%	80.3%	0.9%	4.5%	42	33	9	0	1	2	0	0	31	3	2
NC	23.5%	17.0%	0.4%	0.1%	49.4%	5.3%	4.4%	6,273	4,320	1,937	16	567	610	30	5	3,132	1,446	278
ND	6.1%	5.2%	3.4%	0.3%	79.8%	2.0%	3.3%	109	90	17	2	2	7	4	0	84	1	9
NE	9.1%	20.8%	0.6%	0.2%	60.9%	3.4%	5.0%	514	381	130	3	22	33	3	1	356	59	26
NH	2.9%	7.7%	0.2%	0.1%	81.2%	4.5%	3.4%	403	303	98	2	3	10	1	1	241	95	20
NJ	11.8%	25.6%	0.1%	0.2%	48.5%	11.9%	1.9%	9,391	6,480	2,904	7	422	1,308	51	6	3,466	3,377	351
NM	2.2%	62.9%	7.7%	0.2%	22.8%	1.7%	2.5%	270	191	79	0	5	80	2	0	106	31	6
NV	11.2%	41.3%	0.7%	1.7%	31.1%	7.5%	6.5%	1,701	1,095	593	13	69	432	22	6	616	331	146
NY	14.3%	27.1%	0.6%	0.3%	42.6%	12.7%	2.4%	13,304	8,603	4,668	33	1,322	2,142	81	12	4,621	4,002	463
OH	11.4%	5.1%	0.1%	0.1%	74.0%	4.6%	4.7%	3,754	2,724	1,023	7	241	176	39	3	2,343	648	166
OK	11.5%	22.1%	6.0%	0.7%	45.6%	4.2%	10.0%	500	370	124	6	14	89	19	0	232	82	40
OR	1.9%	23.0%	0.8%	0.8%	62.0%	5.2%	6.1%	714	559	152	3	10	69	2	0	392	150	46
PA	11.0%	13.3%	0.2%	0.1%	66.9%	5.0%	3.5%	6,104	4,434	1,653	17	270	339	49	4	3,548	1,394	270
RI	7.4%	23.3%	0.8%	0.2%	61.5%	3.2%	3.7%	617	426	191	0	38	58	2	0	391	59	28
SC	27.1%	11.6%	0.3%	0.1%	54.0%	2.6%	4.4%	2,159	1,400	742	17	185	196	18	4	1,375	202	118
SD	6.8%	9.3%	4.4%	0.1%	73.2%	1.9%	4.3%	26	22	4	0	3	1	0	0	13	4	2
TN	21.5%	13.0%	0.1%	0.1%	58.2%	3.3%	3.7%	2,046	1,318	720	8	371	220	13	1	962	319	104
TX	12.3%	50.7%	0.3%	0.1%	27.3%	6.7%	2.5%	17,307	12,014	5,254	39	855	4,924	129	9	4,811	5,383	602
UT	1.3%	16.1%	0.5%	1.6%	74.9%	2.4%	3.2%	612	470	139	3	5	62	1	2	421	56	41
VA	19.0%	17.2%	0.2%	0.2%	47.3%	10.2%	5.9%	6,034	4,304	1,719	11	456	505	20	8	2,359	2,067	362
VT	1.8%	2.7%	0.2%	0.1%	89.6%	2.6%	3.0%	150	114	34	2	1	2	0	0	115	14	13
WA	4.4%	20.8%	0.7%	1.4%	54.3%	10.1%	8.4%	4,034	2,742	1,280	12	65	240	28	9	1,614	1,590	283
WI	6.8%	11.7%	0.6%	0.1%	71.1%	5.8%	3.9%	2,080	1,599	476	5	91	102	14	1	1,423	277	78
WV	4.0%	2.8%	0.1%	0.1%	88.7%	1.0%	3.3%	233	160	73	0	4	4	4	0	184	21	3
WY	1.0%	13.0%	1.7%	0.1%	80.0%	1.3%	2.9%	112	77	35	0	0	8	1	0	90	2	3

Appendix 4: **References**

Footnotes

1. See National Momentum: Access and Participation for more details about the definition of foundational computer science.
2. Code.org (2020), CS helps students outperform in school, college, and workplace: https://codeorg.medium.com/cs-helps-students-outperform-in-school-college-and-workplace-66dd64a69536
3. Code.org (2020), CS helps students outperform in school, college, and workplace: https://codeorg.medium.com/cs-helps-students-outperform-in-school-college-and-workplace-66dd64a69536
4. Citation needed
5. Code.org (2016), The class students like most: https://blog.code.org/post/145705852158/the-class-students-like-the-most
6. Google & Gallup (2017), Computer science learning: Closing the gap: Rural small town school districts: https://services.google.com/fh/files/misc/computer-science-learning-closing-the-gap-rural-small-town-brief.pdf
7. Code.org (2020), CS helps students outperform in school, college, and workplace: https://codeorg.medium.com/cs-helps-students-outperform-in-school-college-and-workplace-66dd64a69536
8. UW News (2021), Kids, teens believe girls aren't interested in computer science, study shows: https://www.washington.edu/news/2021/11/22/kids-teens-believe-girls-arent-interested-in-computer-science-study-shows/
9. Google & Gallup (2017), Encouraging Students Toward Computer Science Learning: https://goo.gl/iM5g3A
10. Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools: https://services.google.com/fh/files/misc/computer-science-education-in-us-k12schools-2020-report.pdf
11. Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools: https://services.google.com/fh/files/misc/computer-science-education-in-us-k12schools-2020-report.pdf
12. Google & Gallup (2016), Trends in the State of Computer Science in U.S. K-12 Schools: https://services.google.com/fh/files/misc/trends-in-the-state-of-computer-science-report.pdf
13. Google & Gallup (2016), Trends in the State of Computer Science in U.S. K-12 Schools: https://services.google.com/fh/files/misc/trends-in-the-state-of-computer-science-report.pdf
14. Code.org (2016), Computing occupations are now the #1 source of new wages in America: https://blog.code.org/post/144206906013/computing-occupations-are-now-the-1-source-of-new
15. Code.org (2016), 16% of all new wages in the U.S. are in computer science: https://blog.code.org/post/143085018748/16-of-all-new-wages-in-the-us-are-in-computer
16. Code.org (2014), What % of STEM Should Be Computer Science?: https://blog.code.org/post/89267280803/stem
17. Quartz (2018), The American Midwest is quickly becoming a blue-collar version of Silicon Valley: https://qz.com/1212875/the-american-midwest-is-quickly-becoming-a-blue-collar-version-of-silicon-valley/
18. Inc. (2016), Report: 91 Percent of Vacant Software Jobs Are Outside Silicon Valley: https://www.inc.com/salvador-rodriguez/act-software-developers-map.html

19. Glassdoor (2022), 50 Best Jobs in America for 2022: https://www.glassdoor.com/List/Best-Jobs-in-America-LST_KQ0,20.htm
20. The Economist (2015), It depends what you study, not where: https://www.economist.com/united-states/2015/03/12/it-depends-what-you-study-not-where
21. Code.org (2021), Nine policy ideas to make computer science fundamental to K–12 education: https://code.org/files/Making_CS_Fundamental.pdf
22. Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools: https://services.google.com/fh/files/misc/computer-science-education-in-us-k12schools-2020-report.pdf
23. Google & Gallup (2017), Encouraging students toward computer science learning: https://goo.gl/iM5g3A
24. See the National Momentum: Access and Participation chapter of this report.
25. Google & Gallup (2016), Moving forward: Closing the computer science learning gap: Girls: http://services.google.com/fh/files/misc/computer-science-learning-closing-the-gap-girls-brief.pdf
26. Google & Gallup (2017), Encouraging students toward computer science learning: https://goo.gl/iM5g3A
27. Torbey, R., Martin, N. D., Warner, J. R., & Fletcher, C. L. (2020, February). Algebra I Before High School as a Gatekeeper to Computer Science Participation. In Proceedings of the 51st ACM Technical Symposium on Computer Science Education (pp. 839-844). doi: 10.1145/3328778.3366877
28. Prat, C.S., Madhyastha, T.M., Mottarella, M.J., & Kuo, C.H. (2020), Relating natural language aptitude to individual differences in learning programming languages: https://www.nature.com/articles/s41598-020-60661-8
29. Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools: https://services.google.com/fh/files/misc/computer-science-education-in-us-k12schools-2020-report.pdf
30. Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools: https://services.google.com/fh/files/misc/computer-science-education-in-us-k12schools-2020-report.pdf
31. Defined as students who receive services or have IEPs under the Individuals with Disabilities Education Act (IDEA) or Section 504 of the Rehabilitation Act
32. Defined as students who are eligible for free and reduced-price meals under the National School Lunch Program
33. Includes data from 41% of schools with K–8 grades across AL, DE, FL, GA, HI, IN, KY, MA, MD, NC, NE, NV, OK, SC, TN, UT, VA, WA, and WI
34. The College Board (2020), New data: AP Computer Science Principles course bringing more diverse set of students into computer science pipeline: https://newsroom.collegeboard.org/new-data-ap-csp-course-bringing-more-diverse-set-students-computer-science-pipeline
35. BNY Mellon (2017), State of the States Landscape Report: State-Level Policies Supporting Equitable K–12 Computer Science Education: https://www.edc.org/sites/default/files/uploads/State-States-Landscape-Report.pdf
36. Google & Gallup (2020), Current Perspectives and Continuing Challenges in Computer Science Education in U.S. K-12 Schools: https://services.google.com/fh/files/misc/computer-science-education-in-us-k12schools-2020-report.pdf
37. Warner, J. R., Childs, J., Fletcher, C. L., Martin, N. D., & Kennedy, M. (2021), Quantifying disparities in computing education: Access, participation, and intersectionality

To view this report as a downloadable PDF or to download handouts, slides, graphics, and data sets, visit advocacy.code.org/stateofcs

To view and download the latest K–12 computer science access data by state, district, or school in an interactive data visualization, visit code.org/yourschool/accessreport

For up-to-date policy data and advocacy resources, visit advocacy.code.org

For more information on joining the CSTA or CSTA chapters, visit csteachers.org

For more information about ECEP, visit ecepalliance.org

About the Code.org Advocacy Coalition

Bringing together more than 100 industry, nonprofit, and advocacy organizations, the Code.org Advocacy Coalition is growing the movement to make computer science a fundamental part of K–12 education.

About the Computer Science Teachers Association

The Computer Science Teachers Association (CSTA) is a membership organization that supports and promotes the teaching of computer science. CSTA provides opportunities for K–12 teachers and their students to better understand computer science and to more successfully prepare themselves to teach and learn.

About the Expanding Computing Education Pathways Alliance

The Expanding Computing Education Pathways (ECEP) Alliance is an NSF-funded Broadening Participation in Computing Alliance (NSF-CNS-1822011). ECEP seeks to increase the number and diversity of students in computing and computing-intensive degrees by promoting state-level computer science education reform. Working with the collective impact model, ECEP supports an alliance of 22 states and Puerto Rico to identify and develop effective educational interventions, and expand state-level infrastructure to drive educational policy change.

Advocacy Coalition

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ECEP Expanding Computing Education Pathways

CSTA

2022 State of Computer Science Education

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