



VIRGINIA

2023 State of Computer Science Education

The rapid pace of technological advancement, as seen with the widespread integration of generative artificial intelligence (AI), underscores the need for foundational knowledge in computer science for all students. This report calls upon advocates to embrace the urgency of this matter and revamp school curricula to align with the demands of the 21st century, including requiring that all students learn computer science.

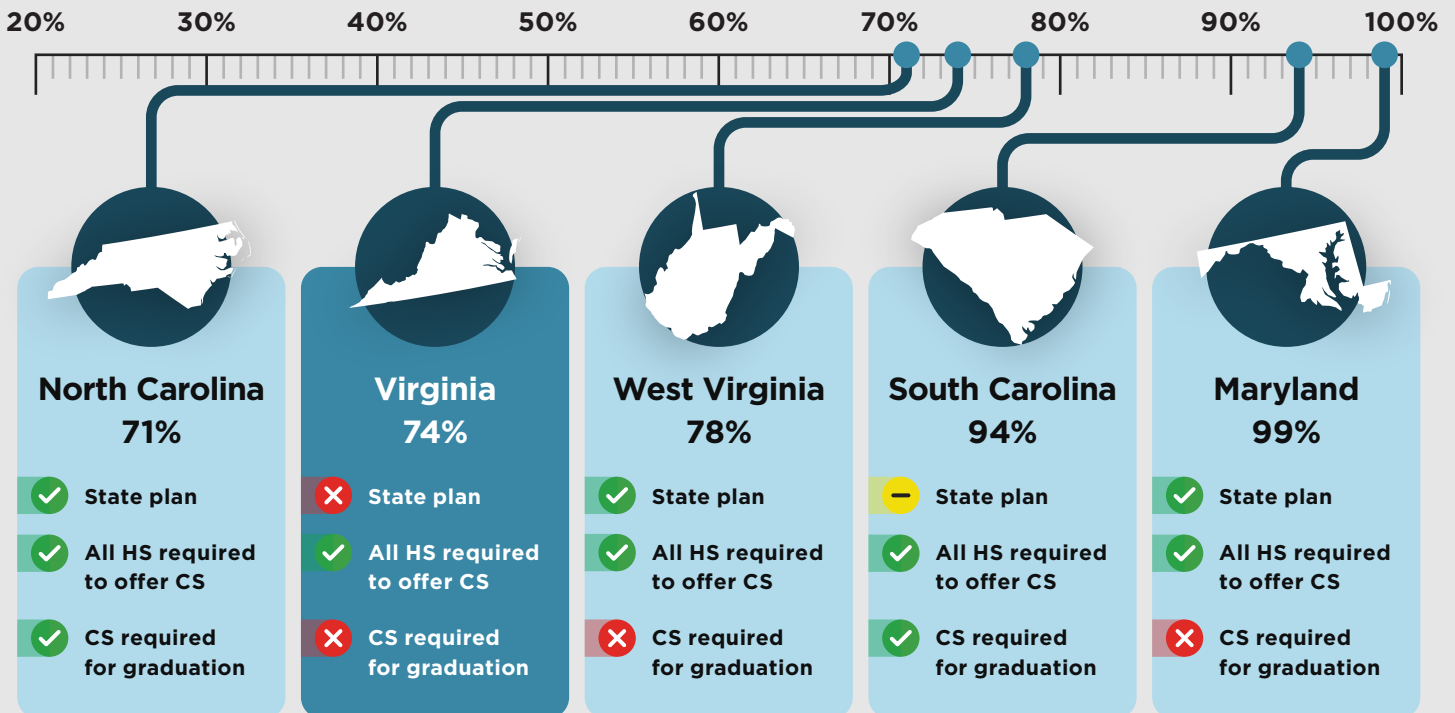
Currently, 57.5% of public high schools in the United States (U.S.) offer a foundational computer science class—an achievement marking the largest percentage growth in the last five years. Across the 35 states* where data is available, 5.8% of high school students are enrolled in foundational computer science. Even with growing access this growth, large disparities still exist, and we must continue to focus on eliminating participation gaps.

29,898
In 2023, VA averaged 29,898 open computing jobs each month

\$120,429
These jobs have an average salary of \$120,429

*AL, AR, AZ, CT, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, MS, NC, ND, NE, NJ, NM, NV, NY, OK, OR, PA, RI, TN, TX, UT, VA, VT, WV, WI

Comparative Access to Computer Science Courses (percentage of high schools offering)





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Ten Policies to Make Computer Science Foundational

1.

Create a **statewide plan** for K-12 computer science



2.

Define computer science and establish standards for K-12 computer science



3.

Allocate funding for rigorous computer science teacher professional learning



4.

Implement **clear certification pathways** for computer science teachers at elementary and secondary levels



5.

Create university programs to **encourage all preservice teachers** to gain exposure to computer science



6.

Establish **dedicated computer science** positions in a state education agency



7.

Require that all schools offer computer science with appropriate implementation timelines



8.

Allow computer science to count toward a core graduation requirement



9.

Allow **computer science to satisfy an admission requirement** at higher education institutions



10.

Require that all students take computer science to earn a high school diploma



What Has Virginia Done to Advance Computer Science Education?

Virginia has funded computer science education since 2017, totaling over \$7M.

In Virginia, teachers with existing licensure can obtain an endorsement through academic coursework or by passing the Praxis CS exam. The Department of Education is also working on alternative pathways to certification.

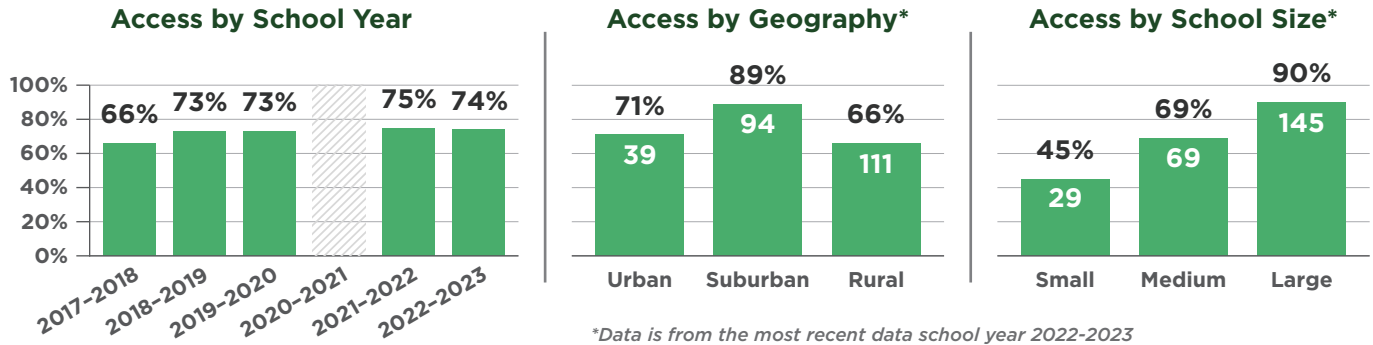
How Can Virginia Increase Opportunities for Students?

Virginia should create a state plan to establish strategies and goals for computer science education across the state.



VIRGINIA

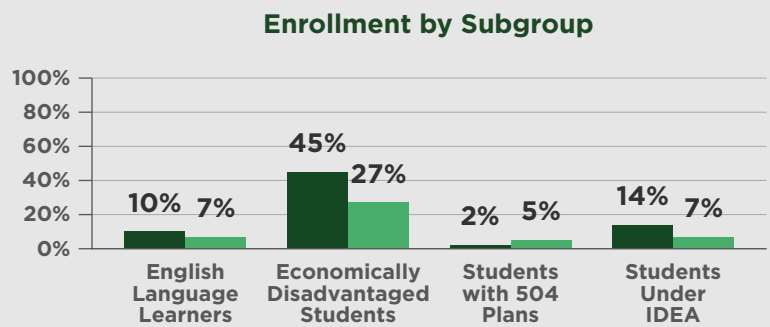
Percentage of Public High Schools Offering Foundational Computer Science



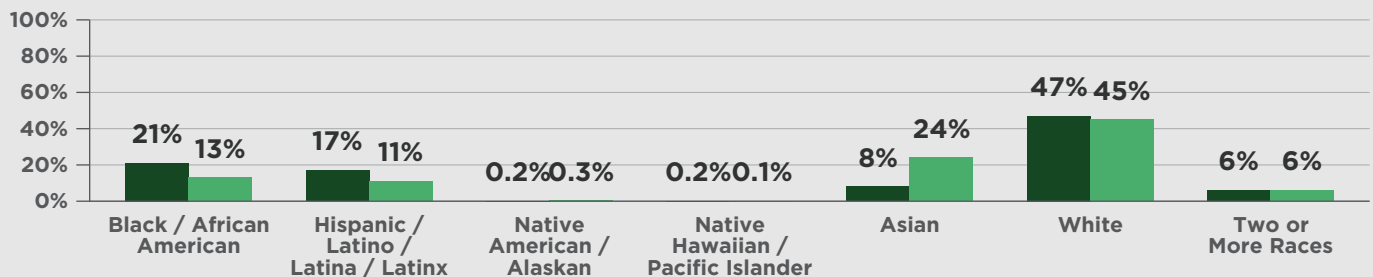
Participation in Foundational High School Computer Science by Student Demographics

5.6% of middle and high school students took foundational computer science in 2022-2023

28% of students who took foundational computer science were female



Enrollment by Race / Ethnicity



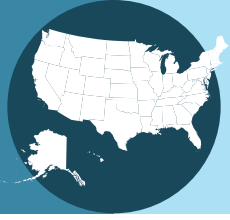
Hispanic students are 2.3 times less likely to take foundational computer science than their white and Asian peers

- Student Demographics 9-12
- Participation in Foundational Courses

K-12 Access and Participation in Computer Science

31% of middle schools** are teaching foundational computer science education, with an enrollment of 5,648 students.

**84% of middle schools reported course offerings and among those schools 31% reported teaching foundational computer science



UNITED STATES

Percentage of Public High Schools Offering Foundational Computer Science Nationally

