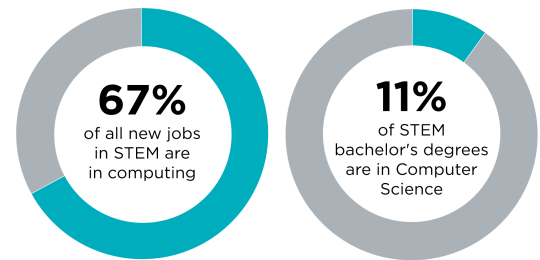


# Support K-12 Computer Science Education in Virginia

Computer science drives job growth and innovation throughout our economy and society. Computing occupations are the **number 1 source of all new wages in the U.S.** and make up over half of all projected new jobs in STEM fields, making Computer Science one of the most in-demand college degrees. And computing is used all around us and in virtually every field. It's foundational knowledge that all students need. But computer science is marginalized throughout education. Only 45% of U.S. high schools teach any computer science courses and only 11% of bachelor's degrees are in Computer Science. We need to improve access for all students, including groups who have traditionally been underrepresented.



93% of parents want their child's school to teach computer science, but only 45% of high schools teach it.

75% of Americans believe computer science is cool in a way it wasn't 10 years ago.

67% of parents and 56% of teachers believe students should be required to learn computer science.

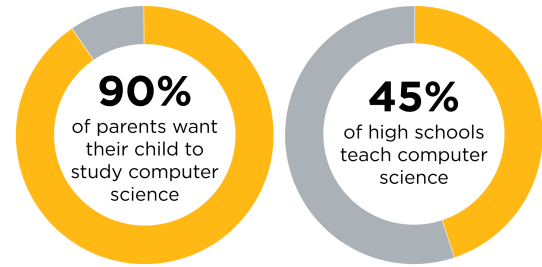
50% of Americans rank computer science as one of the two most important subjects of study after reading and writing.

Students who learn computer science in high school are 6 times more likely to major in it, and women are 10 times more likely.

## Computer science in Virginia

- Virginia currently has **35,593 open computing jobs** (3.2 times the average demand rate in Virginia).
- The average salary for a computing occupation in VA is **\$106,580**, which is significantly higher than the average salary in the state (\$55,310). The existing open jobs alone represent a **\$3,793,505,120 opportunity** in terms of annual salaries.
- Virginia had only **2,098 bachelor's degrees in Computer Science** in 2018; only **21%** were female.
- In Virginia, only **66% of all public high schools teach a foundational computer science course**.
- Only **5,719 exams were taken in AP Computer Science by high school students in Virginia** in 2019 (3,473 took AP CS A and 2,246 took AP CSP).
- Only 29% were female (28% for AP CS A and 32% for AP CSP); only 465 exams were taken by Hispanic or Latino students (246 took AP CS A and 219 took AP CSP); only 441 exams were taken by Black students (207 took AP CS A and 234 took AP CSP); only 5 exams were taken by American Indian or Alaska Native students (1 took AP CS A and 4 took AP CSP); only 5 exams were taken by Native Hawaiian or Pacific Islander students (3 took AP CS A and 2 took AP CSP).
- Only **167 schools** in VA (34% of VA schools with AP programs) offered an AP Computer Science course in 2018-2019 (25% offered AP CS A and 21% offered AP CSP), which is 9 more than the previous year.
- Teacher preparation programs in Virginia did not graduate a single new teacher prepared to teach computer science in 2018.
- According to a representative survey from Google/Gallup, school administrators in VA support expanding computer science education opportunities: 64% of principals surveyed think CS is just as or more important than required core classes.

## What can you do to support K-12 CS education in Virginia?



- Send a letter:
  - To your school/district asking them to expand computer science offerings at every grade level: [www.code.org/promote/letter](http://www.code.org/promote/letter)
  - To your elected officials asking them to support computer science education policy in Virginia: [www.votervoice.net/Code/campaigns/58463/respond](http://www.votervoice.net/Code/campaigns/58463/respond)
- Find out if your school teaches computer science or submit information about your school's offerings at [www.code.org/yourschool](http://www.code.org/yourschool).
- Visit [www.code.org/educate/3rdparty](http://www.code.org/educate/3rdparty) to find out about courses and curriculum from a variety of providers, including Code.org.

## Who can you connect with locally to talk about K-12 CS education policy?

- You can reach Code.org's policy contact for your state, Pat Yongpradit, at [pat@code.org](mailto:pat@code.org).
- The Expanding Computing Education Pathways (ECEP) Alliance ([www.ecepalliance.org](http://www.ecepalliance.org)), an NSF funded Broadening Participation in Computing Alliance, seeks to increase the number and diversity of students in computing and computing-intensive degrees by promoting state-level computer science education reform. ECEP supports 22 states and the territory of Puerto Rico to develop effective and replicable interventions to broaden participation in computing and to create state-level infrastructure to foster equitable computing education policies. You can reach your ECEP point of contact Chris Dovi at [cdovi@codevirginia.org](mailto:cdovi@codevirginia.org) or Rebecca Dovi at [rebeccadovi@codevirginia.org](mailto:rebeccadovi@codevirginia.org).

## Code.org's impact in Virginia

- In Virginia, Code.org's curriculum is used in
  - 18% of elementary schools
  - 19% of middle schools
  - 17% of high schools
- There are 20,085 teacher accounts and 724,642 student accounts on Code.org in Virginia.
- Of students in Virginia using Code.org curriculum last school year,
  - 41% attend high needs schools
  - 41% are in rural schools
  - 41% are female students
  - 38% are underrepresented minority students (Black/African American, Hispanic/Latino, American Indian, or Hawaiian)
- Code.org, its regional partner(s) CodeVA, and 7 facilitators have provided professional learning in Virginia for
  - 1,334 teachers in CS Fundamentals (K-5)
  - 215 teachers in Exploring Computer Science or Computer Science Discoveries
  - 94 teachers in Computer Science Principles

**“Computer Science is a liberal art: it’s something that everybody should be exposed to and everyone should have a mastery of to some extent.”**

— Steve Jobs

# What can your state do to improve computer science education?

States and local school districts need to adopt a broad policy framework to provide all students with access to computer science. The following nine recommendations are a menu of best practices that states can choose from to support and expand computer science. Not all states will be in a position to adopt all of the policies. Read more about these 9 policy ideas at [https://code.org/files/Making\\_CS\\_Fundamental.pdf](https://code.org/files/Making_CS_Fundamental.pdf) and see our rubric for describing state policies at <http://bit.ly/9policiesrubric>.

Virginia **has not** yet created a state plan for K-12 computer science. A plan that articulates the goals for computer science, strategies for accomplishing the goals, and timelines for carrying out the strategies is important for making computer science a fundamental part of a state's education system.

Virginia has established K-12 computer science standards.

Virginia has allocated funding for rigorous computer science professional development and course support.

Virginia has clear certification pathways for computer science teachers.

Virginia has established programs at institutions of higher education to offer computer science to preservice teachers.

Virginia has a dedicated computer science position in the state education agency.

Virginia requires that all secondary schools offer computer science.

Virginia allows computer science to count for a core graduation requirement. Find out how Virginia allows computer science to count towards graduation at <http://bit.ly/9policies>.

Virginia **does not yet** allow computer science to count as a core admission requirement at institutions of higher education. Admission policies that do not include rigorous computer science courses as meeting a core entrance requirement, such as in mathematics or science, discourage students from taking such courses in secondary education. State leaders can work with institutions of higher education to ensure credit and articulation policies align with secondary school graduation requirements.

## Follow us!

Join our efforts to give every student in every school the opportunity to learn computer science. Learn more at [code.org](https://code.org), or follow us on [Facebook](#) and [Twitter](#).

Launched in 2013, Code.org® is a nonprofit dedicated to expanding access to computer science, and increasing participation by women and underrepresented students of color. Our vision is that every student in every school should have the opportunity to learn computer science.

Data is from the Conference Board for job demand, the Bureau of Labor Statistics for state salary and national job projections data, the College Board for AP exam data, the National Center for Education Statistics for university graduate data, the Gallup and Google research study Education Trends in the State of Computer Science in U.S. K-12 Schools for parent demand, the 2018 Computer Science Access Report for schools that offer computer science, and Code.org for its own courses, professional learning programs, and participation data.