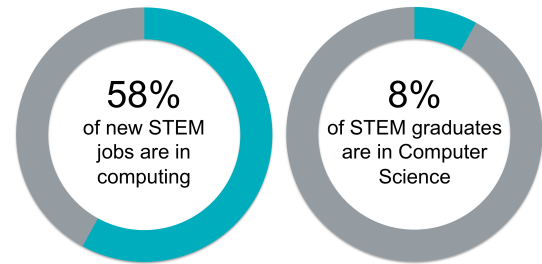


# Support K-12 Computer Science Education in California

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. Fewer than half of U.S. schools offer any computer science courses and only 8% of STEM graduates study it. 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 40% of 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.

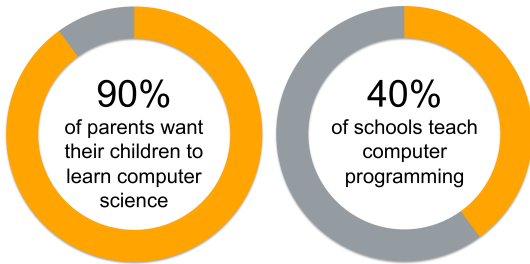
50% of Americans rank computer science as one of the two most important subjects of study after reading and writing.

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 California

- California currently has **75,612 open computing jobs** (4.0 times the average demand rate in California).
- The average salary for a computing occupation in CA is **\$110,078**, which is significantly higher than the average salary in the state (\$56,840). The existing open jobs alone represent a **\$8,323,217,736 opportunity** in terms of annual salaries.
- California had only **4,029 computer science graduates** in 2015; only **16%** were female.
- Only **18,828 exams were taken in AP Computer Science by high school students** in California in 2017 (10,268 took AP CS A and 8,560 took AP CSP).
- Only 29% were female (27% for AP CS A and 32% for AP CSP); only 4,146 exams were taken by Hispanic or Latino students (1,469 took AP CS A and 2,677 took AP CSP); only 345 exams were taken by Black students (138 took AP CS A and 207 took AP CSP); only 26 exams were taken by American Indian or Alaska Native students (13 took AP CS A and 13 took AP CSP); only 48 exams were taken by Native Hawaiian or Pacific Islander students (25 took AP CS A and 23 took AP CSP).
- Only **580 schools** in CA (25% of CA schools with AP programs) offered an AP Computer Science course in 2016-2017 (19% offered AP CS A and 14% offered AP CSP), which is 210 more than the previous year. There are fewer AP exams taken in computer science than in any other STEM subject area.
- Universities in California did not graduate a single new teacher prepared to teach computer science in 2016.

- According to a representative survey from Google/Gallup, school administrators in CA support expanding computer science education opportunities: 70% of principals surveyed think CS is just as or more important than required core classes. And one of their biggest barriers to offering computer science is the lack of funds for hiring and training teachers.



## What can you do to improve K-12 CS education?

1. Call on your school to expand computer science offerings at every grade level.
2. Ask your local school district to allow computer science courses to satisfy a core math or science requirement.
3. Visit [www.code.org/educate/3rdparty](http://www.code.org/educate/3rdparty) to find out about courses and curriculum from a variety of third parties, including Code.org.
4. Visit [www.code.org/promote/CA](http://www.code.org/promote/CA) to learn more about supporting computer science in your state.
5. Sign the petition at [www.change.org/computerscience](http://www.change.org/computerscience) to join 100,000 Americans asking Congress to support computer science.

## Code.org's Impact in California

There are 63,552 teacher accounts and 2,253,567 student accounts on Code.org in California.

Code.org, its regional partner(s) 9 Dots Community Learning Center, Alameda County Office of Education, Contra Costa County Office of Education, Elementary Institute of Science, Fresno County Office of the Superintendent, LAUSD, Riverside County Office of Education, Sacramento County Office of Education, and Silicon Valley Education Foundation, and 69 facilitators have provided professional learning for 9,472 teachers in CS Fundamentals (K-5), 258 teachers in Exploring Computer Science or Computer Science Discoveries, and 203 teachers in Computer Science Principles in California.

**“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>.

- California is in the process of developing a state plan for K-12 computer science.
- California has established K-12 computer science standards.
- California **does not yet** provide dedicated funding for rigorous computer science professional development and course support. Although funds may be available via broader programs, the state can strengthen its computer science programs by creating specific opportunities to bring computer science to school districts, such as matching fund programs.
- California has clear certification pathways for computer science teachers.
- California **has not yet** established programs at institutions of higher education to offer computer science to preservice teachers. The computer science teacher shortage can be addressed by exposing more preservice teachers to computer science during their required coursework or by creating specific pathways for computer science teachers.
- California has a dedicated state board member focused on computer science education. California has an opportunity to make more progress in computer science education by creating a position at the state education authority and creating local leadership positions across the state.
- California **does not yet** require that all secondary schools offer computer science. The state can support the expansion of computer science courses by adopting policies that require schools to offer a computer science course based on rigorous standards, with appropriate implementation timelines and allowing for remote and/or in-person courses.
- California has passed policy that is permissive and encouraging for schools to allow computer science to count for a core graduation requirement, but it is not a requirement for schools. Find out how California allows computer science to count towards graduation at <http://bit.ly/9policies>.
- California allows computer science to count as a core admission requirement at institutions of higher education.

## Follow us!

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

Launched in 2013, Code.org® is a non-profit 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 schools that offer computer science and parent demand, and Code.org for its own courses, professional learning programs, and participation data.