Support K-12 Computer Science Education in Texas

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 35% of U.S. high schools teach any computer science courses and only 10% 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 35% 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 Texas

- Texas currently has 38,225 open computing jobs (3.2 times the average demand rate in Texas).
- The average salary for a computing occupation in TX is $93,518, which is significantly higher than the average salary in the state ($48,700). The existing open jobs alone represent a $3,574,713,700 opportunity in terms of annual salaries.
- Texas had only 3,563 computer science graduates in 2017; only 19% were female.
- Only 11,306 exams were taken in AP Computer Science by high school students in Texas in 2018 (6,475 took AP CS A and 4,831 took AP CSP).
- Only 27% were female (24% for AP CS A and 31% for AP CSP); only 3,013 exams were taken by Hispanic or Latino students (1,487 took AP CS A and 1,526 took AP CSP); only 482 exams were taken by Black students (228 took AP CS A and 254 took AP CSP); only 25 exams were taken by American Indian or Alaska Native students (13 took AP CS A and 12 took AP CSP); only 12 exams were taken by Native Hawaiian or Pacific Islander students (9 took AP CS A and 3 took AP CSP).
- Only 462 schools in TX (26% of TX schools with AP programs) offered an AP Computer Science course in 2017-2018 (22% offered AP CS A and 15% offered AP CSP), which is 63 more than the previous year. There are fewer AP exams taken in computer science than in any other STEM subject area.
- Universities in Texas only graduated 15 new teachers prepared to teach computer science in 2016.
- According to a representative survey from Google/Gallup, school administrators in TX support expanding
What can you do to support K-12 CS education in Texas?

1. Nominate a teacher for a professional learning scholarship: [www.code.org/nominate](http://www.code.org/nominate)
2. 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 Texas: [www.votervoice.net/Code/campaigns/58463/respond](http://www.votervoice.net/Code/campaigns/58463/respond)
3. 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).
4. 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.
5. Visit [www.code.org/promote/TX](http://www.code.org/promote/TX) to learn more about supporting computer science in your state.

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, Alexis Harrigan, at alexis@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 Carol Fletcher at Carol.fletcher@utexas.edu.

Code.org's impact in Texas

- In Texas, Code.org’s curriculum is used in
  - 15% of elementary schools
  - 15% of middle schools
  - 10% of high schools
- There are 43,864 teacher accounts and 1,545,748 student accounts on Code.org in Texas.
- Of students in Texas using Code.org curriculum last school year,
  - 63% attend high needs schools
  - 21% are in rural schools
  - 44% are female students
66% are underrepresented minority students (Black/African American, Hispanic/Latino, American Indian, or Hawaiian)

- Code.org, its regional partner(s) Center for STEM Education at the University of Texas at Austin, Rice University, and the University of Texas at Dallas, and 37 facilitators have provided professional learning in Texas for
  - 9,550 teachers in CS Fundamentals (K-5)
  - 215 teachers in Exploring Computer Science or Computer Science Discoveries
  - 159 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 and see our rubric for describing state policies at http://bit.ly/9policiesrubric.

☐ Texas is in the process of developing a state plan for K-12 computer science.

☐ Texas does not yet have rigorous computer science standards publicly available across K-12. Computer science has often been confused with broader technology education in schools. The state could strengthen its computer science programs by publicly adopting discrete standards for computer science focused on both the creation and use of software and computing technologies at all levels of K-12 education. These standards can be guided by the concepts, practices, and recommendations in the K-12 Computer Science Framework, found at http://www.k12cs.org.

✓ Texas encourages the use of state funds for computer science or computer science professional development. Texas has an opportunity to expand computer science by designating state funds for computer science.

✓ Texas has clear certification pathways for computer science teachers.

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

☐ Texas does not yet have dedicated computer science positions in state or local education agencies. Creating a statewide computer science leadership position within the state education agency can help expand state-level implementation of computer science education initiatives. Similar positions at the local level could support districts’ expansion of course offerings and professional development.

✓ Texas requires that all secondary schools offer computer science.

✓ Texas allows computer science to count for a core graduation requirement. Find out how Texas allows computer science to count towards graduation at http://bit.ly/9policies.
Texas 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, 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.