

# 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 51% 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.



**In Texas, there are currently 54,238 open computing jobs with an average salary of \$94,779.**

**Yet, there were only 4,898 graduates in computer science in 2019 and only 49% of all public high schools teach a foundational course.**

## Computer science in Texas

- Only **14,483 exams were taken in AP Computer Science by high school students in Texas** in 2020 (6,577 took AP CS A and 7,906 took AP CSP).
- Only 29% were taken by female students (24% for AP CS A and 33% for AP CSP); only 3,882 exams were taken by Hispanic/Latino/Latina students (1,351 took AP CS A and 2,531 took AP CSP); only 558 exams were taken by Black/African American students (197 took AP CS A and 361 took AP CSP); only 72 exams were taken by Native American/Alaskan students (31 took AP CS A and 41 took AP CSP); only 14 exams were taken by Native Hawaiian/Pacific Islander students (6 took AP CS A and 8 took AP CSP).
- Only **544 schools** in TX (28% of TX schools with AP programs) offered an AP Computer Science course in 2019-2020 (20% offered AP CS A and 20% offered AP CSP), which is 38 more than the previous year. There are fewer AP exams taken in computer science than in any other STEM subject area.
- Teacher preparation programs in Texas only graduated 13 new teachers prepared to teach computer science in 2018.
- According to a representative survey from Google/Gallup, school administrators in TX support expanding computer science education opportunities: 70% 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 Texas?

- 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)
- 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.

# Code.org's impact in Texas

- In Texas, Code.org's curriculum is used in
  - 15% of elementary schools
  - 19% of middle schools
  - 13% of high schools
- There are 57,199 teacher accounts and 2,072,167 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
  - 43% are female students
  - 13% are Black/African American students
  - 35% are Hispanic/Latino/Latina students
  - 0% are Native American/Alaskan students
  - 0% are Native Hawaiian/Pacific Islander students
  - 25% are white students
  - 9% are Asian students
  - 4% are students who identify as two or more races
- Code.org, its regional partner(s) Texas Advanced Computing Center at the University of Texas at Austin, and 33 facilitators have provided professional learning in Texas for
  - 10,400 teachers in CS Fundamentals (K-5)
  - 297 teachers in Exploring Computer Science or Computer Science Discoveries
  - 227 teachers in Computer Science Principles

## 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>.

- State Plan** - Texas **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.
- K-12 Standards** - The Texas Essential Knowledge and Skills (TEKS) at the high school level contain computer science standards, and HB 2984 (2019) directed the State Board to review and modify the K–8 TEKS for Technology Applications to include coding and computational thinking by December 31, 2020.
- 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.
- Pre-Service Programs** - The Texas Education Agency has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.
- Dedicated State Position** - 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.
- Require High Schools 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.

✔ **Count Towards Graduation** - 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.

✔ **IHE Admission** - Computer science can count as the fourth mathematics credit required for admission at institutions of higher education in Texas.

## 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 youth. Our vision is that every student in every school should have the opportunity to learn computer science.

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### 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](mailto: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. 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 Dr. Carol Fletcher from the University of Texas at Austin at [Cfletcher@tacc.utexas.edu](mailto:Cfletcher@tacc.utexas.edu).

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.