

# Support K-12 Computer Science Education in Oklahoma

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 57.5% of U.S. high schools teach any computer science courses and only 4% of bachelor's degrees are in Computer Science. We need to improve access for all students, including groups who have traditionally been underrepresented.



Yet, there were only 671 graduates in computer science in 2020 and only 62% of all public high schools teach a foundational computer science course.

## Computer science in Oklahoma

- Only **483 exams were taken in AP Computer Science by high school students in Oklahoma** in 2020 (172 took AP CS A and 311 took AP CSP).
- Only 31% were taken by female students (24% for AP CS A and 36% for AP CSP); only 52 exams were taken by Hispanic/Latino/Latina students (17 took AP CS A and 35 took AP CSP); only 17 exams were taken by Black/African American students (11 took AP CS A and 6 took AP CSP); only 14 exams were taken by Native American/Alaskan students (1 took AP CS A and 13 took AP CSP); no exams were taken by Native Hawaiian/Pacific Islander students.
- Only **68 schools** in OK (23% of OK schools with AP programs) offered an AP Computer Science course in 2019-2020 (10% offered AP CS A and 19% offered AP CSP), which is 8 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 Oklahoma 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 OK support expanding computer science education opportunities: 67% 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 support K-12 CS education in Oklahoma?

- Send a letter to your school/district asking them to expand computer science offerings at every grade level: [www.code.org/promote/letter](https://code.org/promote/letter)
- Find out if your school teaches computer science or submit information about your school's offerings at [www.code.org/your-school](https://www.code.org/your-school).
- Visit [www.code.org/educate/3rd-party](https://www.code.org/educate/3rd-party) to find out about courses and curriculum from a variety of providers, including Code.org.

# Code.org's impact in Oklahoma

- In Oklahoma, Code.org's curriculum is used in
  - 12% of elementary schools
  - 16% of middle schools
  - 21% of high schools
- There are 8,300 teacher accounts and 397,688 student accounts on Code.org in Oklahoma.
- Of students in Oklahoma using Code.org curriculum last school year,
  - 49% attend high needs schools
  - 46% are in rural schools
  - 42% are female students
  - 9% are Black/African American students
  - 11% are Hispanic/Latino/Latina students
  - 5% are Native American/Alaskan students
  - 1% are Native Hawaiian/Pacific Islander students
  - 49% are white students
  - 3% are Asian students
  - 4% are students who identify as two or more races
- Code.org, its regional partner(s) Oklahoma Public School Resource Center (OPSRC), and 8 facilitators have provided professional learning in Oklahoma for
  - 415 teachers in CS Fundamentals (K-5)
  - 96 teachers in Exploring Computer Science or Computer Science Discoveries
  - 85 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 ten 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 10 policy ideas at [https://advocacy.code.org/2023\\_making\\_cs\\_foundational.pdf](https://advocacy.code.org/2023_making_cs_foundational.pdf) and see our rubric for describing state policies at <http://bit.ly/9policiesrubric>.

▮ **State Plan** - CSforOK developed a strategic plan for expanding computer science education in 2020. The plan includes a section on equity and will monitor outcomes including increasing participation by female students, Black students, and Hispanic/Latino/Latina students.

▮ **K-12 Standards** - Oklahoma adopted K–12 computer science standards in 2018. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.

▮ **Funding** - Oklahoma **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.

▮ **Certification** - In Oklahoma, teachers with existing licensure can obtain a 9–12 certification through passing the state content exam; teachers can also earn an initial license in computer science.

▮ **Pre-Service Programs** - Oklahoma **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.

▮ **Dedicated State Position** - The Oklahoma State Department of Education has a Director of Education Technology and Computer Science Education, and will soon hire a full-time Director of Computer Science Education.

▮ **Require High Schools to Offer** - SB 252 (2021) required all schools (elementary, middle, and high) to offer computer science by the 2024–2025 school year. Further, SB 593 (2019) directed the State Department of Education to develop a rubric for computer science programs in elementary, middle, and high schools to serve as a guide to schools for implementing quality computer science programs.

▮ **Count Towards Graduation** - In Oklahoma, an approved computer science course can count as a mathematics or computer technology/world language

credit in the Core Diploma Pathway.

▣ **Higher Ed Admission** - Two computer science credits can count towards the additional required units in required content areas for admissions at institutions of higher education, which aligns with Oklahoma's high school graduation policy.

▣ **Graduation Requirement** - Oklahoma **does not yet** require students to take computer science to earn a high school diploma. Graduation requirements ensure that all students get exposure to computer science.

## 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, Anthony Owen, at [anthony.owen@code.org](mailto:anthony.owen@code.org).

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.