

Support K-12 Computer Science Education in South Carolina

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 823 graduates in computer science in 2020 and only 94% of all public high schools teach a foundational computer science course.

Computer science in South Carolina

- Only 2,124 exams were taken in AP Computer Science by high school students in South Carolina in 2020 (437 took AP CS A and 1,687 took AP CSP).
- Only 34% were taken by female students (26% for AP CS A and 37% for AP CSP); only 163 exams were taken by Hispanic/Latino/Latina students (22 took AP CS A and 141 took AP CSP); only 184 exams were taken by Black/African American students (24 took AP CS A and 160 took AP CSP); only 17 exams were taken by Native American/Alaskan students (4 took AP CS A and 13 took AP CSP); only 2 exams were taken by Native Hawaiian/Pacific Islander students (0 took AP CS A and 2 took AP CSP).
- Only 86 schools in SC (25% of SC schools with AP programs) offered an AP Computer Science course in 2019-2020 (9% offered AP CS A and 22% offered AP CSP), which is 15 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 South Carolina 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 SC support expanding computer science education opportunities: 73% of principals surveyed think CS is just as or more important than required core classes. And their biggest barrier 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 South Carolina?

- 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/yourschool.
- Visit 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 South Carolina

- In South Carolina, Code.org's curriculum is used in
 - 20% of elementary schools
 - 37% of middle schools
 - 38% of high schools
- There are 13,992 teacher accounts and 661,872 student accounts on Code.org in South Carolina.
- Of students in South Carolina using Code.org curriculum last school year,
 - 59% attend high needs schools
 - 43% are in rural schools
 - 47% are female students
 - 33% are Black/African American students
 - 7% are Hispanic/Latino/Latina students
 - 0% are Native American/Alaskan students
 - 0% are Native Hawaiian/Pacific Islander students
 - 44% are white students
 - 2% are Asian students
 - 4% are students who identify as two or more races
- Code.org, its regional partner(s) The STEM Center of Excellence at the Citadel, and 11 facilitators have provided professional learning in South Carolina for
 - 1,335 teachers in CS Fundamentals (K-5)
 - 346 teachers in Exploring Computer Science or Computer Science Discoveries
 - 275 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 and see our rubric for describing state policies at <http://bit.ly/9policiesrubric>.

▣ **State Plan** -

▣ **K-12 Standards** - South Carolina adopted K–8 computer science and digital literacy standards in 2017 and high school standards in 2018. Standards address concepts of equity, such as bias, accessible technology, and inclusivity.

▣ **Funding** - H 4300 (FY 2024) allocated \$3.5M to teacher professional development. H 4100 (FY 2022) allocated \$1.768M to teacher professional development, certification, and regional computer science specialists. H 4000 (FY 2020) allocated \$500K to teacher professional development; that funding continued in FY 2021 through a continuing resolution. H 3720 (FY 2018) allocated \$400K to the Department of Education to implement the Computer Science Task Force's recommendations.

▣ **Certification** - In South Carolina, teachers with or without existing licensure can obtain 9–12 certification by completing an approved preparation program and passing the state content exam. The state provided dedicated funding in FY 2022 to offset the cost of computer science certification.

▣ **Pre-Service Programs** - South Carolina **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 South Carolina Department of Education has a Computer Science Specialist.

▣ **Require High Schools to Offer** - In 2018, the South Carolina Department of Education revised the list of courses that satisfy the computer science graduation requirement, effectively requiring all high schools to offer at least one computer science course by the 2018–2019 school year (with waivers available until the 2020–2021 school year) and requiring all students to take at least one credit of computer science to graduate.

▣ **Count Towards Graduation** - In South Carolina, all students must take one credit of computer science to graduate. Multiple computer science courses are approved to meet the credit.

▮ **Higher Ed Admission** - Computer science can count as the fourth mathematics credit required for admission at institutions of higher education. Further, students are strongly encouraged to take computer science as a high school elective.

▮ **Graduation Requirement** - The South Carolina Department of Education modified the existing technology requirement to be a robust computer science graduation requirement, beginning in school year 2019-2020, schools were able to apply for a 1 year waiver.

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

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, Hannah Weissman, at hannah.weissman@code.org.
- The Expanding Computing Education Pathways (ECEP) Alliance (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 Jennifer Albert at jennifer.albert@citadel.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.