# Support K-12 Computer Science Education in Alabama

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.

**93% of parents** want their child's school to teach computer science, but only **53% of high schools** offer it.

More than **70% of superintendents and principals** say offering computer science is just as important as offering subjects like English, math, history, and 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 **six times** more likely to major in it, and **women are ten times more likely**.

Black students are **more interested** in CS and **more confident** in their abilities than white students but are less likely to enroll in a class.

Yet, there were only 893 graduates in computer science in 2020 and only 95% of all public high schools teach a foundational computer science course.

## Computer science in Alabama

- Only **2,196 exams were taken in AP Computer Science by high school students in** Alabama in 2020 (310 took AP CS A and 1,886 took AP CSP).
- Only 37% were taken by female students (18% for AP CS A and 40% for AP CSP); only 162 exams were taken by Hispanic/Latino/Latina students (20 took AP CS A and 142 took AP CSP); only 328 exams were taken by Black/African American students (17 took AP CS A and 311 took AP CSP); only 25 exams were taken by Native American/Alaskan students (1 took AP CS A and 24 took AP CSP); only 1 exam was taken by Native Hawaiian/Pacific Islander students (0 took AP CS A and 1 took AP CSP).
- Only **145 schools** in AL (44% of AL schools with AP programs) offered an AP Computer Science course in 2019-2020 (10% offered AP CS A and 43% offered AP CSP), which is 21 more than the previous year.
- Teacher preparation programs in Alabama 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 AL support expanding computer science education opportunities: 69% 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 Alabama?

- Send a letter to your school/district asking them to expand computer science offerings at every grade level: %a{href:"https://code.org/promote/letter"} www.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 Alabama

- In Alabama, Code.org’s curriculum is used in
    - 29% of elementary schools
    - 34% of middle schools
    - 29% of high schools
- There are 18,789 teacher accounts and 777,311 student accounts on Code.org in Alabama.
- Of students in Alabama using Code.org curriculum last school year,
    - 54% attend high needs schools
    - 42% are in rural schools
    - 45% are female students
    - 23% are Black/African American students
    - 7% are Hispanic/Latino/Latina students
    - 1% are Native American/Alaskan students
    - 0% are Native Hawaiian/Pacific Islander students
    - 56% are white students
    - 2% are Asian students
    - 3% are students who identify as two or more races
- Code.org, its regional partner(s) A+ College Ready, and 12 facilitators have provided professional learning in Alabama for
    - 4,097 teachers in CS Fundamentals (K-5)
    - 529 teachers in Exploring Computer Science or Computer Science Discoveries
    - 343 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 -** The Alabama Governor's Computer Science Advisory Council developed a series of policy recommendations in 2019, including goals and strategies in 2019 and created a corresponding timeline in 2021. Some of the goals of the plan include: supporting teachers, strengthening student pathways, and further engage industry expanding CS. The plan includes strategies to reach each goal.

 **K-12 Standards -** Alabama adopted K–12 computer science and digital literacy standards in 2018. The “Equitable Access” Position Statement in the standards document includes examples of ways to broaden participation in computer science education, and the standards address concepts of equity, such as bias, accessible technology, and inclusivity.

 **Funding -** SB 88 (FY 2024) appropriated $9.271M for CS education: $6M for CS4AL, $2.375M for the Technology in Motion Program, $300K for CS educator training, and $613K for the Middle School Programming Initiative. HB 135 (FY 2023) appropriated $6.271M for CS education: $3M for CS4AL, $2.375M for the Technology in Motion Program, $300K for CS educator training, and $613K for the Middle School Programming Initiative. SB 189 (FY 2022) appropriated $3.771M: $2M for CS4AL, $613K for Middle School Programming Initiative, $857K for Technology in Motion, and $300K for CS Educator Training. HB 187 (FY 2021) appropriated $3.771M: $2M for CS4AL, $613K for Middle School Programming Initiative, $857K for Technology in Motion, and $300K for CS Educator Training. SB 199 (FY 2020) appropriated $2.771M for CS education: $613K for the Middle School Programming Initiative, $300K for CS educator training, $1M for CS4AL, and $857K for the Technology in Motion Program to train K–12 teachers in computer science. HB 175 (FY 2019) appropriated $1.771M for CS education: $613K for the Middle School Programming Initiative, $857K for the Technology in Motion Program and an additional $300K was allocated for professional development. SB 129 (FY 2018) allocated $675K for the Middle School Programming Initiative.

 **Certification -** In Alabama, teachers with existing licensure can add 6–12 computer science as an additional teaching field by passing the Praxis CS exam. Teachers can also obtain a course-specific permit by completing an approved training or college credit for the specific course. State funding for computer science can support credentialing for teachers.

 **Pre-Service Programs -** In September 2019, the Alabama State Board of Education passed Teacher Educator Standards for Computer Science, which are used to approve programs at institutions of higher education.

 **Dedicated State Position -** The Alabama State Department of Education has an Education Specialist and an Educator Administrator for Digital Literacy and Computer Science.

 **Require High Schools to Offer -** Act 389 (2019) required all high schools, middle schools, and elementary schools to offer computer science by the 2020–2021 school year. The act required the State Department of Education to report the aggregate gender, racial, and socioeconomic diversity of students enrolled in high-quality computer science courses.

 **Count Towards Graduation -** In Alabama, courses including AP Computer Science A or AP Computer Science Principles can count as a mathematics or science credit for graduation.

 **Higher Ed Admission -** Computer science can count as a mathematics or science credit required for admission, as determined by each public institution of higher education in Alabama.

 **Graduation Requirement -** Alabama **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**, 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.
- 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 Jeff Gray at gray@cs.ua.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.