Support K-12 Computer Science Education in Hawaii

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 164 graduates in computer science in 2020 and only 72% of all public high schools teach a foundational computer science course.

Computer science in Hawaii

- Only **742 exams were taken in AP Computer Science by high school students in** Hawaii in 2020 (134 took AP CS A and 608 took AP CSP).
- Only 34% were taken by female students (25% for AP CS A and 36% for AP CSP); only 97 exams were taken by Hispanic/Latino/Latina students (14 took AP CS A and 83 took AP CSP); only 1 exam was taken by Black/African American students (0 took AP CS A and 1 took AP CSP); only 1 exam was taken by Native American/Alaskan students (0 took AP CS A and 1 took AP CSP); only 30 exams were taken by Native Hawaiian/Pacific Islander students (4 took AP CS A and 26 took AP CSP).
- Only **32 schools** in HI (44% of HI schools with AP programs) offered an AP Computer Science course in 2019-2020 (16% offered AP CS A and 38% offered AP CSP). There are fewer AP exams taken in computer science than in any other STEM subject area.
- Teacher preparation programs in Hawaii did not graduate a single new teacher prepared to teach computer science in 2018.

What can you do to support K-12 CS education in Hawaii?

- 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 Hawaii

- In Hawaii, Code.org's curriculum is used in
  - 53% of elementary schools

- 36% of middle schools
- 38% of high schools
- There are 6,623 teacher accounts and 280,048 student accounts on Code.org in Hawaii.
- Of students in Hawaii using Code.org curriculum last school year,
  - 44% attend high needs schools
  - 11% are in rural schools
  - 43% are female students
  - 3% are Black/African American students
  - 3% are Hispanic/Latino/Latina students
  - 0% are Native American/Alaskan students
  - 14% are Native Hawaiian/Pacific Islander students
  - 12% are white students
  - 29% are Asian students
  - 10% are students who identify as two or more races
- Code.org, its regional partner(s) STEMworks, and 4 facilitators have provided professional learning in Hawaii for
  - 1,428 teachers in CS Fundamentals (K-5)
  - 81 teachers in Exploring Computer Science or Computer Science Discoveries
  - 30 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 Hawaii State Department of Education developed a state plan for expanding computer science access in 2018. The plan includes a section focused on goals to increase diversity and equity in computer science.

 K-12 Standards - Hawaii adopted the CSTA K–12 Computer Science Standards in 2018. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.

 Funding - Although Hawaii does not currently provide dedicated state funding, HB 2607 (FY 2019) dedicated $500K to computer science teacher professional development and required grantees to address how they plan to instruct teachers to effectively teach students in computer science, including students from demographic groups that are historically underrepresented in computer science. In 2019, the state budget increased the weighted per-pupil funding to schools by $3M, directing that schools use some of these funds to implement computer science curriculum.

 Certification - In Hawaii, teachers with existing licensure can obtain a K–6, 6–12, or K–12 certification by completing a state-approved teacher education program, passing the Praxis CS exam, coursework and experience, professional development and experience, or holding a certification from another state and experience. The state also has a limited license for individuals with CS industry experience.

 Pre-Service Programs - Hawaii **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 Hawaii Department of Education has a Computer Science Specialist.

 Require High Schools to Offer - Act 51 (2018) required all high schools to offer at least one computer science course by the 2021–2022 school year, and Act 158 (2021) required all middle, elementary, and charter schools to offer computer science by the 2024–2025 school year. Beginning with the 2022–2023 school year, at least one public elementary school and one public middle/intermediate school in each Complex Area shall offer computer science courses or content. The state set incremental requirements for each year to phase in the requirements. Act 158 also required the department to submit an annual report on the computer science offerings and enrollment, disaggregated by student demographics.

 Count Towards Graduation - In Hawaii, AP computer science can count as the fourth mathematics credit required for the Academic or STEM Honors Recognition Certificate for graduation.

IHE Admission - Hawaii **does not yet** allow computer science to count as a core admission requirement at institutions of higher education. Admission policies that do not include rigorous computer science courses as meeting a core entrance requirement, such as in mathematics or science, discourage students from taking such courses in secondary education. State leaders can work with institutions of higher education to ensure credit and articulation policies align with secondary school graduation requirements.

 Graduation Requirement - Hawaii **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.

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, Amber Mariano Davis, at amber@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 Brett Tanaka at brett.tanaka@k12.hi.us.

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.