Support K-12 Computer Science Education in Washington

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 2,491 graduates in computer science in 2020 and only 47% of all public high schools teach a foundational computer science course.

Computer science in Washington

- Only **4,230 exams were taken in AP Computer Science by high school students in** Washington in 2020 (2,439 took AP CS A and 1,791 took AP CSP).
- Only 30% were taken by female students (30% for AP CS A and 30% for AP CSP); only 303 exams were taken by Hispanic/Latino/Latina students (151 took AP CS A and 152 took AP CSP); only 76 exams were taken by Black/African American students (26 took AP CS A and 50 took AP CSP); only 19 exams were taken by Native American/Alaskan students (8 took AP CS A and 11 took AP CSP); only 11 exams were taken by Native Hawaiian/Pacific Islander students (7 took AP CS A and 4 took AP CSP).
- Only **177 schools** in WA (44% of WA schools with AP programs) offered an AP Computer Science course in 2019-2020 (29% offered AP CS A and 27% offered AP CSP), which is 10 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 Washington 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 WA support expanding computer science education opportunities: 65% 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 Washington?

- 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 Washington

- In Washington, Code.org's curriculum is used in
    - 30% of elementary schools
    - 25% of middle schools
    - 16% of high schools
- There are 46,898 teacher accounts and 1,562,637 student accounts on Code.org in Washington.
- Of students in Washington using Code.org curriculum last school year,
    - 40% attend high needs schools
    - 15% are in rural schools
    - 42% are female students
    - 7% are Black/African American students
    - 13% are Hispanic/Latino/Latina students
    - 1% are Native American/Alaskan students
    - 2% are Native Hawaiian/Pacific Islander students
    - 45% are white students
    - 12% are Asian students
    - 7% are students who identify as two or more races
- Code.org, its regional partner(s) AVID, and 28 facilitators have provided professional learning in Washington for
    - 3,509 teachers in CS Fundamentals (K-5)
    - 310 teachers in Exploring Computer Science or Computer Science Discoveries
    - 183 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 Washington State Office of Superintendent of Public Instruction adopted a plan for K–12 computer science education in 2022. The plan includes a section on diversity, equity, and inclusion.

 K-12 Standards - Washington adopted updated K–12 computer science standards based on the CSTA standards in 2018. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.

 Funding - SB 5187 (FY 2024 and 2025), SB 5092 (FY 2022 and 2023), HB 1109 (FY 2020 and 2021), SB 5883 (FY 2018 and 2019), and SB 6052 (FY 2016 and 2017) appropriated $1M annually for the computer science education grant program with a one-to-one private match requirement. HB 1109 exempted the match requirement for districts with greater than 50% of students eligible for free and reduced-price meals. Grants are intended to support innovative ways to engage students from historically underrepresented groups, including female students, low-income students, and students in underrepresented racial and ethnic groups.`

 Certification - In Washington, teachers with existing licensure can obtain a K–12 endorsement through passing the state content exam. Legislation was passed in 2021 to create two new specialty endorsements in computer science and allocated $63,000 to start this process. State funding for computer science can support credentialing for teachers.

 Pre-Service Programs - The Washington Office of Superintendent of Public Instruction has approved teacher preparation programs leading to certification in computer science. The Washington State Opportunity Scholarship also provided funding for Central Washington University and Western Washington University to develop a computer science endorsement program.

 Dedicated State Position - The Washington Office of the Superintendent of Public Instruction has a Computer Science Program Supervisor.

 Require High Schools to Offer - SB 5088 (2019) required that each school district that operates a high school must provide access to an elective computer science course by the 2022–2023 school year. HB 1577 (2019) required each school district to report the number of computer science course offerings and demographics of the students enrolled in the courses, starting in June 2020. SB 5657 (2022) requires each school district operating an institutional education program for youth in state long-term juvenile institutions to provide an opportunity to access an elective computer science course.

 Count Towards Graduation - In Washington, a computer science course that aligns to the state computer science learning standards can count as the third required mathematics credit or science credit for graduation.

 Higher Ed Admission - AP Computer Science A can count as a mathematics credit required for admission at institutions of higher education in Washington.

 Graduation Requirement - Washington **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, Maggie Glennon, at maggie@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 Amy J Ko at ajko@uw.edu or Shannon Thissen at Shannon.Thissen@k12.wa.us and see your state ECEP project at **https://sites.google.com/uw.edu/csforallwa/**.

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.