Support K-12 Computer Science Education in Wisconsin

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 1,557 graduates in computer science in 2020 and only 56% of all public high schools teach a foundational computer science course.

Computer science in Wisconsin

- Only **2,051 exams were taken in AP Computer Science by high school students in** Wisconsin in 2020 (782 took AP CS A and 1,269 took AP CSP).
- Only 21% were taken by female students (18% for AP CS A and 23% for AP CSP); only 118 exams were taken by Hispanic/Latino/Latina students (41 took AP CS A and 77 took AP CSP); only 29 exams were taken by Black/African American students (8 took AP CS A and 21 took AP CSP); only 11 exams were taken by Native American/Alaskan students (2 took AP CS A and 9 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 **128 schools** in WI (26% of WI schools with AP programs) offered an AP Computer Science course in 2019-2020 (16% offered AP CS A and 20% offered AP CSP), which is 3 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 Wisconsin only graduated 4 new teachers prepared to teach computer science in 2018.
- According to a representative survey from Google/Gallup, school administrators in WI support expanding computer science education opportunities: 61% 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 Wisconsin?

- 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 Wisconsin

- In Wisconsin, Code.org's curriculum is used in
    - 23% of elementary schools
    - 21% of middle schools
    - 16% of high schools
- There are 15,445 teacher accounts and 711,532 student accounts on Code.org in Wisconsin.
- Of students in Wisconsin using Code.org curriculum last school year,
    - 20% attend high needs schools
    - 34% are in rural schools
    - 45% are female students
    - 13% are Black/African American students
    - 8% are Hispanic/Latino/Latina students
    - 1% are Native American/Alaskan students
    - 0% are Native Hawaiian/Pacific Islander students
    - 58% are white students
    - 6% are Asian students
    - 5% are students who identify as two or more races
- Code.org, its regional partner(s) Marquette University, and 12 facilitators have provided professional learning in Wisconsin for
    - 2,397 teachers in CS Fundamentals (K-5)
    - 239 teachers in Exploring Computer Science or Computer Science Discoveries
    - 107 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 - Wisconsin **has not** yet created a state plan for K-12 computer science. A plan that articulates the goals for computer science, strategies for accomplishing the goals, and timelines for carrying out the strategies is important for making computer science a fundamental part of a state's education system.

 K-12 Standards - Wisconsin adopted K–12 computer science standards in 2017. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.

 Funding - Wisconsin **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 Wisconsin, teachers with existing licensure can obtain a 4–12 supplementary license by passing the Praxis CS exam. An initial license in computer science requires completing a state-approved preparation program.

 Pre-Service Programs - The Wisconsin Department of Public Instruction has approved teacher preparation programs leading to certification in computer science and lists these programs publicly.

 Dedicated State Position - The Wisconsin Department of Public Instruction hired a Computer Science and Digital Learning Innovation Consultant.

 Require High Schools to Offer - Although Wisconsin does not yet require that all secondary schools offer computer science, state statute 118.01(2)(a)5 requires each school board to provide an instructional program designed to give students knowledge in computer science, including problem-solving, computer applications, and the social impact of computers.

 Count Towards Graduation - In Wisconsin, computer science courses that meet the department's definition of computer science can count as a mathematics credit for graduation.

 IHE Admission - Wisconsin **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 - Wisconsin **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, Julia Wynn, at julia.wynn@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.