

Support K-12 Computer Science Education in New Jersey

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 2,785 graduates in computer science in 2020 and only 82% of all public high schools teach a foundational computer science course.

Computer science in New Jersey

- Only **9,238 exams were taken in AP Computer Science by high school students in New Jersey** in 2020 (4,635 took AP CS A and 4,603 took AP CSP).
- Only 30% were taken by female students (28% for AP CS A and 33% for AP CSP); only 1,062 exams were taken by Hispanic/Latino/Latina students (412 took AP CS A and 650 took AP CSP); only 327 exams were taken by Black/African American students (147 took AP CS A and 180 took AP CSP); only 39 exams were taken by Native American/Alaskan students (20 took AP CS A and 19 took AP CSP); only 4 exams were taken by Native Hawaiian/Pacific Islander students (3 took AP CS A and 1 took AP CSP).
- Only **310 schools** in NJ (55% of NJ schools with AP programs) offered an AP Computer Science course in 2019-2020 (44% offered AP CS A and 37% offered AP CSP), which is 34 more than the previous year.
- Teacher preparation programs in New Jersey only graduated 1 new teacher prepared to teach computer science in 2018.
- According to a representative survey from Google/Gallup, school administrators in NJ support expanding computer science education opportunities: 75% 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 New Jersey?

- 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/your-school.
- 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 New Jersey

- In New Jersey, Code.org's curriculum is used in
 - 30% of elementary schools
 - 34% of middle schools
 - 28% of high schools
- There are 23,358 teacher accounts and 1,289,874 student accounts on Code.org in New Jersey.
- Of students in New Jersey using Code.org curriculum last school year,
 - 32% attend high needs schools
 - 6% are in rural schools
 - 46% are female students
 - 17% are Black/African American students
 - 22% are Hispanic/Latino/Latina students
 - 1% are Native American/Alaskan students
 - 0% are Native Hawaiian/Pacific Islander students
 - 31% are white students
 - 11% are Asian students
 - 6% are students who identify as two or more races
- Code.org, its regional partner(s) TCNJ Center for Excellence in STEM Education, and 11 facilitators have provided professional learning in New Jersey for
 - 3,597 teachers in CS Fundamentals (K-5)
 - 178 teachers in Exploring Computer Science or Computer Science Discoveries
 - 113 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 New Jersey Department of Education developed a state plan for computer science education implementation in 2019. The plan includes a section on equity and promotes equitable access in the mission and vision statements.

▮ **K-12 Standards** - New Jersey adopted revised computer science and design thinking standards in June 2020. The standards' vision statement focuses on equitable access for all students and fostering their ability to participate in an inclusive and diverse computing culture that appreciates and incorporates perspectives from people of different genders, ethnicities, and abilities. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.

▮ **Funding** - A5669 (FY 2024), SB 2023 (FY 2023), and SB 2022 (FY 2022) allocated \$2M and A4720 (FY 2021) included \$800K for the K–12 Computer Science Education Initiative. The Secondary School Computer Science Education Initiative (PL 2018, Chapter 53) allocated \$2M for FY 2019. SB 2500 renewed the \$2M appropriation for FY 2020, but was later not included in the revised FY 2020 budget by NJ A3 (20R).

▮ **Certification** - In New Jersey, teachers with existing licensure can obtain a 9–12 CTE endorsement with a combination of previous teaching experience and academic coursework.

▮ **Pre-Service Programs** - New Jersey **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 New Jersey Department of Education has a Computer Science Coordinator.

▮ **Require High Schools to Offer** - A2873 (2018) required all high schools to offer a course in computer science by the 2018–2019 school year. S990 (2020) required the department to report on computer science course enrollment disaggregated by gender, race and ethnicity, special education status, English language learner status, eligibility for the free and reduced price lunch program, and grade level.

▣ **Count Towards Graduation** - In New Jersey, computer science can count as a mathematics credit for graduation.

▣ **IHE Admission** - New Jersey **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** - New Jersey **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.

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.