

# Support K-12 Computer Science Education in Rhode Island

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 522 graduates in computer science in 2020 and only 86% of all public high schools teach a foundational computer science course.

## Computer science in Rhode Island

- Only 737 exams were taken in AP Computer Science by high school students in Rhode Island in 2020 (164 took AP CS A and 573 took AP CSP).
- Only 31% were taken by female students (28% for AP CS A and 31% for AP CSP); only 59 exams were taken by Hispanic/Latino/Latina students (17 took AP CS A and 42 took AP CSP); only 33 exams were taken by Black/African American students (1 took AP CS A and 32 took AP CSP); only 1 exam was taken by Native American/Alaskan students (0 took AP CS A and 1 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 45 schools in RI (66% of RI schools with AP programs) offered an AP Computer Science course in 2019-2020 (29% offered AP CS A and 57% offered AP CSP), which is 5 more than the previous year.
- Teacher preparation programs in Rhode Island 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 Rhode Island?

- 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](https://www.code.org/your-school).
- Visit [www.code.org/educate/3rd-party](https://www.code.org/educate/3rd-party) to find out about courses and curriculum from a variety of providers, including Code.org.

## Code.org's impact in Rhode Island

- In Rhode Island, Code.org's curriculum is used in
  - 33% of elementary schools

- 34% of middle schools
  - 45% of high schools
- There are 4,772 teacher accounts and 224,977 student accounts on Code.org in Rhode Island.
- Of students in Rhode Island using Code.org curriculum last school year,
  - 32% attend high needs schools
  - 16% are in rural schools
  - 47% are female students
  - 8% are Black/African American students
  - 17% are Hispanic/Latino/Latina students
  - 1% are Native American/Alaskan students
  - 0% are Native Hawaiian/Pacific Islander students
  - 54% are white students
  - 4% are Asian students
  - 5% are students who identify as two or more races
- Code.org, its regional partner(s) University of Rhode Island, and 9 facilitators have provided professional learning in Rhode Island for
  - 1,208 teachers in CS Fundamentals (K-5)
  - 94 teachers in Exploring Computer Science or Computer Science Discoveries
  - 88 teachers in Computer Science Principles

Code.org has a partnership with the State of Rhode Island to help spread K-5 computer science to its schools.

## 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](https://advocacy.code.org/2023_making_cs_foundational.pdf) and see our rubric for describing state policies at <http://bit.ly/9policiesrubric>.

▣ **State Plan** - CS4RI (a partnership between the Governor's office and the Rhode Island Department of Education) created a state plan for computer science education implementation. One of the goals of the plan is to broaden participation among populations that are underrepresented in computer science.

▣ **K-12 Standards** - Rhode Island adopted K–12 computer science standards in 2018. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity. Additionally, standards can be met without computing devices or with limited hardware access, making implementation possible for all schools.

▣ **Funding** - H 5151A (FY 2020), H 7200A (FY 2019), H 5175 (FY 2018), and H 7454 (FY 2017) allocated \$210K annually for computer science professional development. Grants focus on broadening participation, and priority is given to Title I-eligible schools. The Department received a \$2.5M federal grant to support the creation of high school computer science pathways that incorporate work-based learning.

▣ **Certification** - In Rhode Island, teachers with existing licensure can obtain an endorsement through academic coursework from an approved provider.

▣ **Pre-Service Programs** - The Rhode Island Department of Education has approved teacher preparation programs leading to the endorsement in computer science and lists those programs publicly.

▣ **Dedicated State Position** - The Rhode Island Department of Education has a core team advancing the goals of CS4RI, including the Digital Learning Specialist, CS4RI High School Grant Project Manager, and CS4RI Work-Based Learning Specialist.

▣ **Require High Schools to Offer** - Rhode Island requires every student to graduate successfully demonstrating proficiency in computer science beginning with the class of 2028. Previously, the CS4RI initiative and the Governor's office set a goal for all students to have access to computer science courses by the end of 2017.

▣ **Count Towards Graduation** - In Rhode Island, all students must take one credit of computer science to graduate.

▣ **IHE Admission** - Rhode Island **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** - In November 2022, after several months of public comment and multi-stakeholder collaboration, the Board of Education approved new secondary regulations. These regulations included real-world relevant proficiencies, one of which requires that students must demonstrate proficiency in 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](https://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, Hannah Weissman, at [hannah.weissman@code.org](mailto:hannah.weissman@code.org).
- The Expanding Computing Education Pathways (ECEP) Alliance ([www.ecepalliance.org](https://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 Vic Fay-Wolfe at [vfaywolfe@uri.edu](mailto:vfaywolfe@uri.edu) or Holly Walsh at [Holly.Walsh@ride.ri.gov](mailto:Holly.Walsh@ride.ri.gov) and see your state ECEP project at <https://www.cs4ri.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.