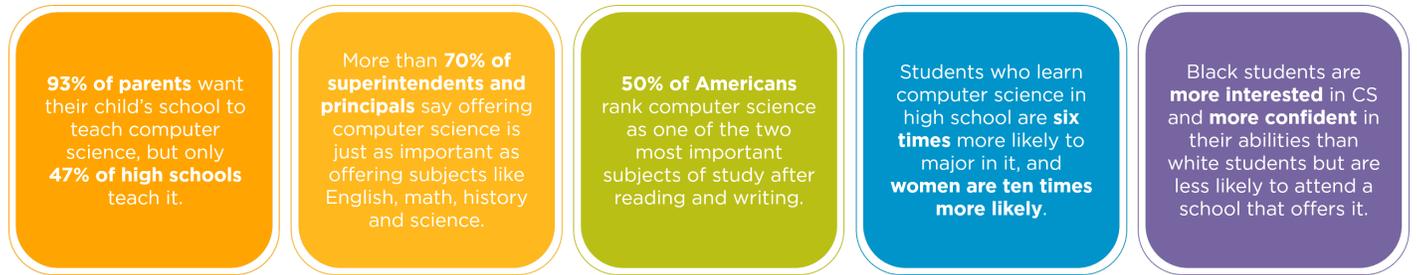


# Support K-12 Computer Science Education in Michigan

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 45% of U.S. high schools teach any computer science courses and only 11% of bachelor's degrees are in Computer Science. We need to improve access for all students, including groups who have traditionally been underrepresented.



**In Michigan, there are currently 9,582 open computing jobs with an average salary of \$82,386.**

**Yet, there were only 2,467 graduates in computer science in 2018 and only 37% of all public high schools teach a foundational course.**

## Computer science in Michigan

- Only **4,604 exams were taken in AP Computer Science by high school students in Michigan** in 2020 (1,451 took AP CS A and 3,153 took AP CSP).
- Only 29% were taken by female students (24% for AP CS A and 32% for AP CSP); only 232 exams were taken by Hispanic/Latino/Latina students (56 took AP CS A and 176 took AP CSP); only 163 exams were taken by Black/African American students (19 took AP CS A and 144 took AP CSP); only 8 exams were taken by Native American/Alaskan students (0 took AP CS A and 8 took AP CSP); only 5 exams were taken by Native Hawaiian/Pacific Islander students (3 took AP CS A and 2 took AP CSP).
- Only **237 schools** in MI (31% of MI schools with AP programs) offered an AP Computer Science course in 2019-2020 (13% offered AP CS A and 27% offered AP CSP), which is 21 more than the previous year.
- Teacher preparation programs in Michigan only graduated 1 new teacher prepared to teach computer science in 2018.
- According to a representative survey from Google/Gallup, school administrators in MI support expanding computer science education opportunities: 61% 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 Michigan?

- Send a letter:
  - To your school/district asking them to expand computer science offerings at every grade level: [www.code.org/promote/letter](http://www.code.org/promote/letter)
  - To your elected officials asking them to support computer science education policy in Michigan: [www.votervoice.net/Code/campaigns/59886/respond](http://www.votervoice.net/Code/campaigns/59886/respond)
- Find out if your school teaches computer science or submit information about your school's offerings at [www.code.org/yourschool](http://www.code.org/yourschool).
- Visit [www.code.org/educate/3rdparty](http://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 Michigan

- In Michigan, Code.org's curriculum is used in
  - 21% of elementary schools
  - 23% of middle schools
  - 19% of high schools
- There are 14,272 teacher accounts and 852,200 student accounts on Code.org in Michigan.
- Of students in Michigan using Code.org curriculum last school year,
  - 51% attend high needs schools
  - 30% are in rural schools
  - 43% are female students
  - 12% are Black/African American students
  - 6% are Hispanic/Latino/Latina students
  - 1% are Native American/Alaskan students
  - 1% are Native Hawaiian/Pacific Islander students
  - 59% are white students
  - 6% are Asian students
  - 7% are students who identify as two or more races
- Code.org, its regional partner(s) Grand Valley State University, and 23 facilitators have provided professional learning in Michigan for
  - 1,096 teachers in CS Fundamentals (K-5)
  - 240 teachers in Exploring Computer Science or Computer Science Discoveries
  - 270 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 nine 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 9 policy ideas at [https://code.org/files/Making\\_CS\\_Fundamental.pdf](https://code.org/files/Making_CS_Fundamental.pdf) and see our rubric for describing state policies at <http://bit.ly/9policiesrubric>.

- State Plan** - Michigan **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** - Michigan adopted the CSTA K–12 Computer Science Standards in 2019. Standards within each grade band address concepts of equity, such as bias, accessible technology, and inclusivity.
- Funding** - Michigan **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** - Michigan **does not yet** have clear certification pathways for computer science teachers. The expansion of K-12 computer science education is hampered by the lack of qualified computer science teachers. We can grow their ranks by creating clear, navigable, and rewarding professional paths for computer science teachers.
- Pre-Service Programs** - Michigan **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 Michigan Department of Education has a Computer Science Consultant.
- Require High Schools to Offer** - Michigan **does not yet** require that all secondary schools offer computer science. The state can support the expansion of computer science courses by adopting policies that require schools to offer a computer science course based on rigorous standards, with appropriate implementation timelines and allowing for remote and/or in-person courses.
- Count Towards Graduation** - In Michigan, any department-approved computer science course can count as the fourth mathematics credit for graduation or replace the Algebra II requirement.

□ **IHE Admission** - Michigan **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.

## 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, Maggie Glennon, at [maggie@code.org](mailto:maggie@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.