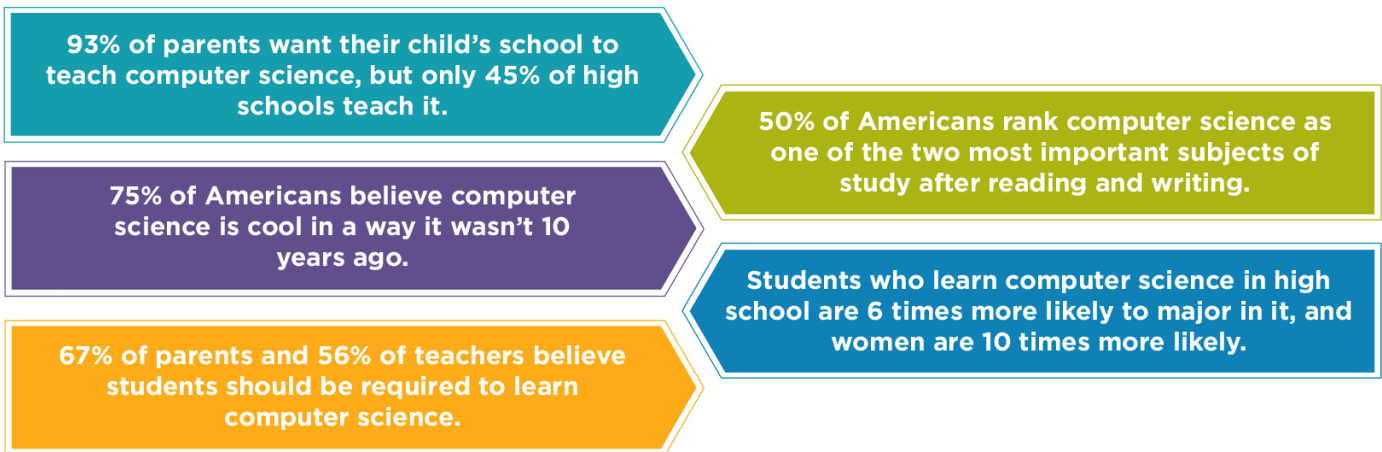
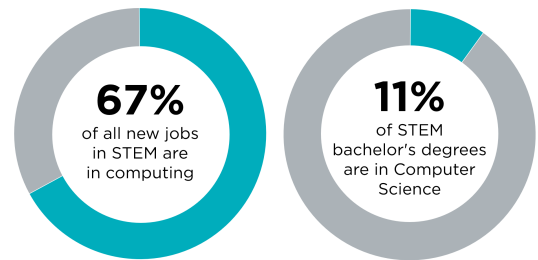


Support K-12 Computer Science Education in North Dakota

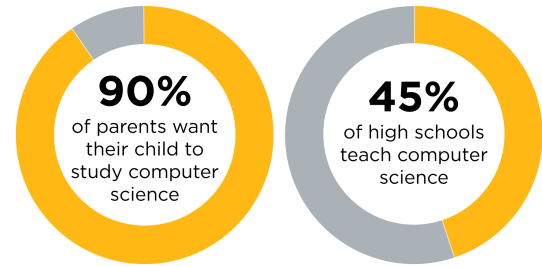
Computer science drives job growth and innovation throughout our economy and society. Computing occupations are the **number 1 source of all new wages in the U.S.** and make up over half of all projected new jobs in STEM fields, making Computer Science one of the most in-demand college degrees. And computing 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.



Computer science in North Dakota

- North Dakota currently has **506 open computing jobs** (3.3 times the average demand rate in North Dakota).
- The average salary for a computing occupation in ND is **\$73,102**, which is significantly higher than the average salary in the state (\$49,620). The existing open jobs alone represent a **\$36,989,525 opportunity** in terms of annual salaries.
- North Dakota had only **152 bachelor's degrees in Computer Science** in 2018; only 9% were female.
- In North Dakota, only **44% of all public high schools teach a foundational computer science course.**
- Only **84 exams were taken in AP Computer Science by high school students in North Dakota** in 2019 (34 took AP CS A and 50 took AP CSP).
- Only 19% were female (12% for AP CS A and 24% for AP CSP); only 6 exams were taken by Hispanic/Latino/Latina students (1 took AP CS A and 5 took AP CSP); only 3 exams were taken by Black/African American students (1 took AP CS A and 2 took AP CSP); only 1 exam was taken by Native American/Alaskan students (1 took AP CS A and 0 took AP CSP); no exams were taken by Native Hawaiian/Pacific Islander students.
- Only **11 schools** in ND (20% of ND schools with AP programs) offered an AP Computer Science course in 2018-2019 (13% offered AP CS A and 11% offered AP CSP).
- Teacher preparation programs in North Dakota 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 North Dakota?



- Send a letter:
 - To your school/district asking them to expand computer science offerings at every grade level: www.code.org/promote/letter
 - To your elected officials asking them to support computer science education policy in North Dakota: www.votervoice.net/Code/campaigns/58463/respond
- 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.

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.

Code.org's impact in North Dakota

- In North Dakota, Code.org's curriculum is used in
 - 28% of elementary schools
 - 18% of middle schools
 - 16% of high schools
- There are 2,051 teacher accounts and 69,854 student accounts on Code.org in North Dakota.
- Of students in North Dakota using Code.org curriculum last school year,
 - 9% attend high needs schools
 - 58% are in rural schools
 - 48% are female students
 - 22% are students from marginalized racial and ethnic groups underrepresented in computer science (Black/African American, Hispanic/Latino/Latina, Native American/Alaskan, or Native Hawaiian/Pacific Islander)
- Code.org, its regional partner(s) EduTech, and 5 facilitators have provided professional learning in North Dakota for
 - 375 teachers in CS Fundamentals (K-5)
 - 35 teachers in Exploring Computer Science or Computer Science Discoveries
 - 21 teachers in Computer Science Principles

“Computer Science is a liberal art: it’s something that everybody should be exposed to and everyone should have a mastery of to some extent.”

— Steve Jobs

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 and see our rubric for describing state policies at <http://bit.ly/9policiesrubric>.

State Plan - North Dakota **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 - North Dakota adopted K–12 computer science and cybersecurity standards in 2019, becoming the first state to create K–12 cybersecurity standards.

Funding - North Dakota **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 North Dakota, teachers with existing licensure can obtain a grade level corresponding credential through academic coursework. Teachers are eligible to teach specific computer science courses for five years after earning a Level I (200 hours), Level II (40 hours), or Level III (15 hours) Computer Science and Cybersecurity Credential (effective April 1, 2020). Teachers can renew the credential by completing 30 hours of academic work during the five year period.

Pre-Service Programs - North Dakota **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 - North Dakota **does not yet** have dedicated computer science positions in state or local education agencies. Creating a statewide computer science leadership position within the state education agency can help expand state-level implementation of computer science education initiatives. Similar positions at the local level could support districts' expansion of course offerings and professional development.

Require High Schools to Offer - North Dakota **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 North Dakota, AP Computer Science A or Mathematics for Computer Science/Information Technology can count as a mathematics credit for graduation.

IHE Admission - North Dakota **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, 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.

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.