

# Support K-12 Computer Science Education in Indiana

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 2,722 graduates in computer science in 2020 and only 91% of all public high schools teach a foundational computer science course.

## Computer science in Indiana

- Only **2,890 exams were taken in AP Computer Science by high school students in Indiana** in 2020 (804 took AP CS A and 2,086 took AP CSP).
- Only 24% were taken by female students (16% for AP CS A and 27% for AP CSP); only 232 exams were taken by Hispanic/Latino/Latina students (52 took AP CS A and 180 took AP CSP); only 144 exams were taken by Black/African American students (38 took AP CS A and 106 took AP CSP); only 14 exams were taken by Native American/Alaskan students (3 took AP CS A and 11 took AP CSP); only 2 exams were taken by Native Hawaiian/Pacific Islander students (1 took AP CS A and 1 took AP CSP).
- Only **124 schools** in IN (30% of IN schools with AP programs) offered an AP Computer Science course in 2019-2020 (16% offered AP CS A and 23% offered AP CSP), which is 21 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 Indiana only graduated 1 new teacher prepared to teach computer science in 2018.
- According to a representative survey from Google/Gallup, school administrators in IN support expanding computer science education opportunities: 60% 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 Indiana?

- 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/3rdparty](https://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 Indiana

- In Indiana, Code.org’s curriculum is used in
  - 35% of elementary schools
  - 31% of middle schools
  - 29% of high schools
- There are 20,359 teacher accounts and 993,366 student accounts on Code.org in Indiana.
- Of students in Indiana using Code.org curriculum last school year,
  - 42% attend high needs schools
  - 43% are in rural schools
  - 44% are female students
  - 14% are Black/African American students
  - 10% are Hispanic/Latino/Latina students
  - 1% are Native American/Alaskan students
  - 0% are Native Hawaiian/Pacific Islander students
  - 59% are white students
  - 4% are Asian students
  - 4% are students who identify as two or more races
- Code.org, its regional partner(s) Nextech, and 17 facilitators have provided professional learning in Indiana for
  - 3,202 teachers in CS Fundamentals (K-5)
  - 288 teachers in Exploring Computer Science or Computer Science Discoveries
  - 171 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](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 Indiana Department of Education created a state plan for computer science education implementation in 2019. The plan includes a section focused on goals and strategies to increase participation for female students, students with disabilities, rural students, and students from marginalized racial and ethnic groups underrepresented in computer science.

▢ **K-12 Standards** - Indiana published a comprehensive set of K–12 computer science standards in 2018.

▢ **Funding** - HEA 1001 (FY 2025, 2024, 2023, 2022, 2021, and 2020) allocated \$3M annually for teacher professional development. SEA 172 (FY 2019) required the Department of Education to contract with a provider to offer professional development.

▢ **Certification** - In Indiana, teachers with existing licensure can obtain a 5–12 or preK–12 academic endorsement by passing the state-adopted content exam. An initial license in computer science requires completing a state-approved program and passing the exam. The state has a CTE Workplace Specialist license for individuals with occupational experience. The educator standards for the new elementary STEM license addition include computer science.

▢ **Pre-Service Programs** - The Indiana Department of Education has approved computer science teacher preparation programs leading to certification in computer science and lists these programs publicly. In 2020, Indiana began requiring all preservice K–6 teachers to learn computer science.

▢ **Dedicated State Position** - The Indiana Department of Education has a Computer Science Specialist.

▢ **Require High Schools to Offer** - SEA 172 (2018) required all elementary, middle, and high schools to offer computer science by the 2021–2022 school year. SEA 295 (2020) required the Department of Education to post an annual report on computer science course enrollment disaggregated by race, gender, grade, ethnicity, limited English proficiency, free and reduced lunch status, and eligibility for special education.

▢ **Count Towards Graduation** - In Indiana, AP Computer Science, IB Computer Science, Cambridge International CS, Industrial Automation and Robotics, or CTE CS I or II can count as a mathematics or quantitative reasoning credit required for graduation. Computer science can also count as the third science requirement.

▢ **Higher Ed Admission** - Computer science can count as a mathematics or science credit required for admission at institutions of higher education, which aligns with Indiana's high school graduation policy.

▮ **Graduation Requirement** - Indiana **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](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, Julia Wynn, at [julia.wynn@code.org](mailto:julia.wynn@code.org).
- The Expanding Computing Education Pathways (ECEP) Alliance ([www.ecepalliance.org](http://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 Anne T. Ottenbreit-Leftwich at [aleftwic@indiana.edu](mailto:aleftwic@indiana.edu) or Maureen Biggers at [biggersm@indiana.edu](mailto:biggersm@indiana.edu).

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.