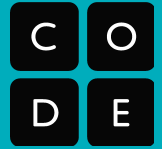


All High Schools Offer Computer Science



With less than half of all schools teaching computer science, the lack of access hurts state economies and creates major inequities in education, particularly for those groups that have been traditionally underrepresented in computer science. To address the issue of access, as a starting point, states should adopt policies that require high schools to offer at least one computer science course based on rigorous standards. Because this goal can't be reached overnight, schools and state education authorities should plan for effective implementation. As of October 2020, 20 states have set mandates for achieving the goal.

Approaches

Legislation that requires schools to offer at least one computer science course:

- Arkansas: "Beginning in the 2015–2016 school year, a public high school or public charter high school shall offer at least one (1) computer science course at the high school level."
- Delaware: "By the 2020–2021 school year, all public high schools, including charter schools, shall offer at least 1 computer science course."
- Georgia: "Beginning in the 2022–2023 school year: Each local school system shall provide that at least one high school in its school system offers a course in computer science"

Legislation that requires schools to offer instruction in computer science content:

- Connecticut: "In the public schools the program of instruction offered shall include at least the following subject matter, as taught by legally qualified teachers, computer science, including, but not limited to, computer programming instruction."
- Wyoming: "Each school district within the state shall provide educational programs sufficient to meet uniform student content and performance standards at the level established by the state board of education in the following areas of knowledge and skills: common core of knowledge: Computer science. Common core of skills: Computational thinking and computer applications"

State board action:

- In West Virginia, the state board updated Policy 2510 to require all secondary schools to offer a computer science course beginning in the 2016–2017 school year.

Required standards or course for all students:

- Virginia has created computer science standards that are required for all students to learn.
- South Carolina requires all students to complete one credit in computer science for high school graduation.

Setting a state goal:

- Governors in the [Governors for Computer Science partnership](#) commit to working towards enabling all high schools to offer at least one rigorous computer science course. This has helped to direct state goals (e.g., RI, IA) and support legislative mandates (e.g., NV).
- [CS4RI](#), a partnership between the Rhode Island state government, Department of Education, K–12 schools, higher education, and nonprofits, was launched by the Office of Governor Gina Raimondo with the aim of having computer science in every public school by December 2017.

Key Elements to Include in Legislation

- **Definition of computer science.** The legislation should define, or require that the state education agency defines, computer science and which courses are considered to be computer science courses.
 - Florida defines computer science: “For the purposes of this section, the term “computer science” means the study of computers and algorithmic processes, including their principles, hardware and software designs, applications, and their impact on society, and includes computer coding and computer programming.” and “Computer science courses must be identified in the Course Code Directory and published on the Department of Education’s website no later than July 1, 2018. Additional computer science courses may be subsequently identified and posted on the department’s website.”
 - Georgia defines computer science courses: “‘Computer science courses and content’ means high school courses that teach 27 computer science as stand-alone implementations and middle school courses that provide 28 instruction in computer science in standalone implementations or embedded in other 29 subjects and focus on how to create and understand technology, rather than simply using 30 technology.”
 - Idaho requires alignment with state CS standards: “Computer science courses must be aligned with the Idaho content standards for computer science.”
- **Phased-in implementation.** Best practice is to phase in implementation with several years’ lead time, laying out an appropriate timeline with milestones and annual reporting.
 - Georgia is phasing in the requirement over a period of six years with three benchmarks: at least one high school per district must teach it in the 2022–2023 school year, 50 percent of high schools in each district in 2023– 2024, and finally all high schools in 2024–2025. All elementary and middle schools in Georgia must offer instruction in exploratory computer science beginning in the 2022–2023 school year.
- **Provide guidance on how to make the course accessible.** Consider how the course will be offered and if schools are permitted to offer the course via an online format or virtual school provider.

- Arkansas: “A computer science course offered by a public high school or public charter high school shall: (3) Be made available in a traditional classroom setting, blended learning environment, online-based, or other technology-based format that is tailored to meet the needs of each participating student.”
- Florida: “The Florida Virtual School shall offer computer science courses identified in the Course Code Directory pursuant to paragraph (2)(b). If a school district does not offer an identified course, the district must provide students access to the course through the Florida Virtual School or through other means.”
- Georgia: “‘Offer’ means providing a course taught by a computer science teacher: (A) Who is onsite at the physical location of the school; or (B) Who is not onsite at the physical location of the school but conducts the course through virtual means with a proctor onsite at the physical location of the school.”
- **Require elementary and middle schools.** Consider requiring elementary and middle schools to teach or offer computer science courses as well.
 - Alabama, Arkansas, Connecticut, Indiana, New Hampshire, West Virginia, Wyoming require all elementary, middle, and high schools to teach computer science.
- **Pair with complementary policies.** It is important that states considering a requirement for all high schools to offer computer science also consider complementary policies, including:
 - funding for teacher professional learning,
 - teacher certification requirements,
 - a state-level computer science supervisor,
 - development of K–12 computer science standards,
 - a state plan for scaling computer science across the state,
 - pre-service teacher preparation, and
 - whether computer science can substitute for a core graduation requirement and higher education admissions requirement.
- **Require demographic report.** Consider requiring schools to report not only which courses are offered and enrollment, but also the demographics of students enrolled in each course, including gender, race/ethnicity, socioeconomic status, and disability status.

Best Practices for Implementation

- District planning workshops, such as the CSforALL SCRIPT workshops (csforall.org/script), have been held across the nation to support school districts in visioning, self-assessment, and goal-setting to implement K–12 computer science.
- See other best practices and recommendations in the [State of the States Landscape Report](#) (Priority #8).
- Data on the percent of high schools teaching computer science in each state can be found in the [State of Computer Science Education Report](#).

Sample State Legislative Language

- See [model legislative language here](#).
- Alabama ([Act 389](#) of 2019)
- Arkansas ([Act 187](#) of 2015)
- Connecticut ([SB 957](#) of 2019)
- Delaware ([HB 15](#) of 2017)
- Florida ([HB 495](#) of 2018)
- Georgia ([SB 108](#) of 2019)
- Hawaii ([HB 2607](#) of 2018)
- Idaho ([HB 648](#) of 2018)
- Indiana ([SB 172](#) of 2018)
- Maryland ([HB 281](#) of 2018)
- New Hampshire ([HB 1674](#) of 2018)
- New Jersey ([SB 2485](#) of 2018)
- Nevada ([SB 200](#) of 2017)
- Washington ([SB 5088](#) of 2019)
- Wyoming ([SF 29](#) of 2018)