

Computer Science Education Policy Levers



What Is It?

Computer science is the study of computers and algorithmic processes, including their principles, hardware and software designs, application and impact on society. It may include a stand-alone course or a course that embeds computer science into its content.

Policy Levers

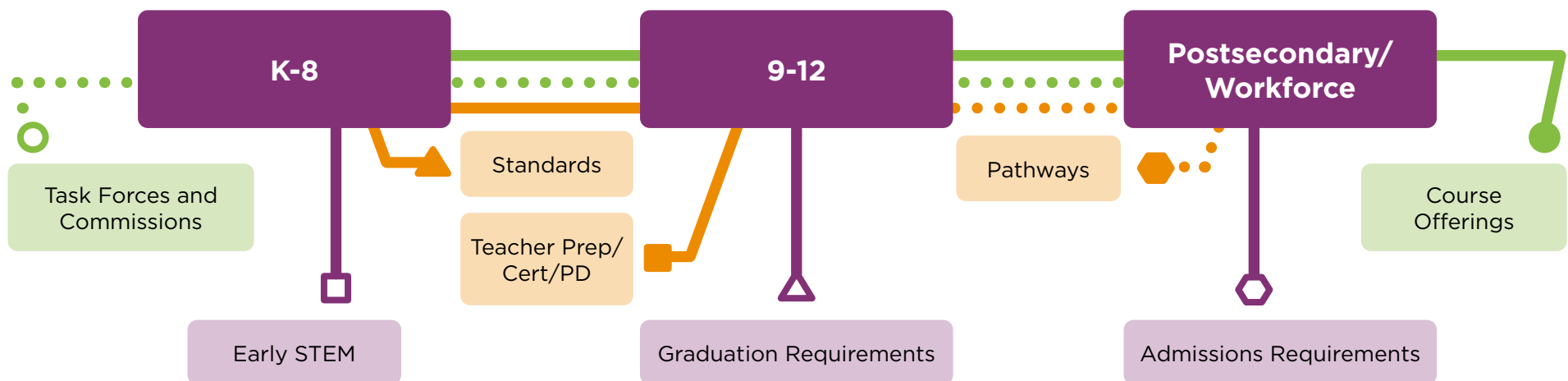
Various state policy levers are available across K-12, postsecondary and workforce sectors. While each of the policies we identify can stand alone, several states have implemented multiple policies across the continuum. Two examples are [Arkansas](#) and [South Carolina](#).

Across the policy levers highlighted in this report, funding is a critical component, especially in the area of teacher preparation and credentials, and other support, such as for equipment.

Progress and Opportunities

According to Code.org's 2022 State of Computer Science Education report:

- 53% of U.S. high schools offer foundational computer science, while 5.6% of high school students are enrolled in those courses.
- Nationally, about 32% of female students participate in foundational computer science courses. Three states (Maryland, Mississippi, South Carolina) exceed 40% participation.
- Disparities exist among student enrollment in these courses. For example, schools that offer foundational computer science education are less likely to enroll Latino and Hispanic students than they are to enroll Asian or white students.



State Examples



Early STEM provides opportunities to use developmentally appropriate [learning](#) to advance young learners' growth in 21st century skills.

Iowa's Computer Science is Elementary is a special project from the Governor's STEM Advisory Council that aims to create innovative learning at schools with high-poverty rates.



Standards define the knowledge or skills a student should learn at each grade level. At least 41 states have adopted K-12 computer science standards.

New York State Board of Education [approved](#) K-12 computer science and digital fluency learning standards in 2020.



Course offerings require courses or the integration of computer science into other coursework. At least 27 states require high schools to offer a computer science course.

Tennessee [H.B. 2153](#) requires one course for middle school students and that all elementary school students receive grade-appropriate education.



Graduation requirements are present in at least five states (**Arkansas, Nebraska, Nevada, South Carolina** and **Tennessee**). Some states also allow computer science to satisfy a core graduation requirement.

Washington's [S.B. 5299](#) allows a student to substitute a computer science course aligned to the state learning standards as an alternative to a third year of math or science.



Teacher preparation, certification and professional development ensures there are enough trained instructors for courses.

California [A.B. 181](#) provides funding for an Educator Effectiveness Block Grant to develop programs that support teacher shortages, and to provide teacher residencies and pathway programs in areas including computer science.



Pathways involve course options in high school, such as career and technical education and Advanced Placement courses offering college credit; as well as degree pathways and defined pipelines to in-demand careers.



Kentucky [2022 H.B. 680](#) creates the WeLeadCS virtual computer science career academy to expand access to accelerated, early college career pathways for Kentucky high school students and to prepare them for careers in computing, especially in the field of data science.



Higher education admissions requirements can include computer science education.

Missouri [S.B. 718](#) requires public institutions of higher education to accept computer science coursework (that count toward state high school graduation requirements) in admissions.



Task forces and commissions examine topics pertaining to education and often provide guidance for policymaking decisions.



Louisiana [Act 541](#) establishes the Computer Science Education Advisory Commission to provide recommendations for the development and implementation of a state action plan for education in all public schools and a comprehensive program that spans all levels of education.