



# MASSACHUSETTS

## 2023 State of Computer Science Education

The rapid pace of technological advancement, as seen with the widespread integration of generative artificial intelligence (AI), underscores the need for foundational knowledge in computer science for all students. This report calls upon advocates to embrace the urgency of this matter and revamp school curricula to align with the demands of the 21st century, including requiring that all students learn computer science.

Currently, 57.5% of public high schools in the United States (U.S.) offer a foundational computer science class—an achievement marking the largest percentage growth in the last five years. Across the 35 states\* where data is available, 5.8% of high school students are enrolled in foundational computer science. Even with growing access this growth, large disparities still exist, and we must continue to focus on eliminating participation gaps.

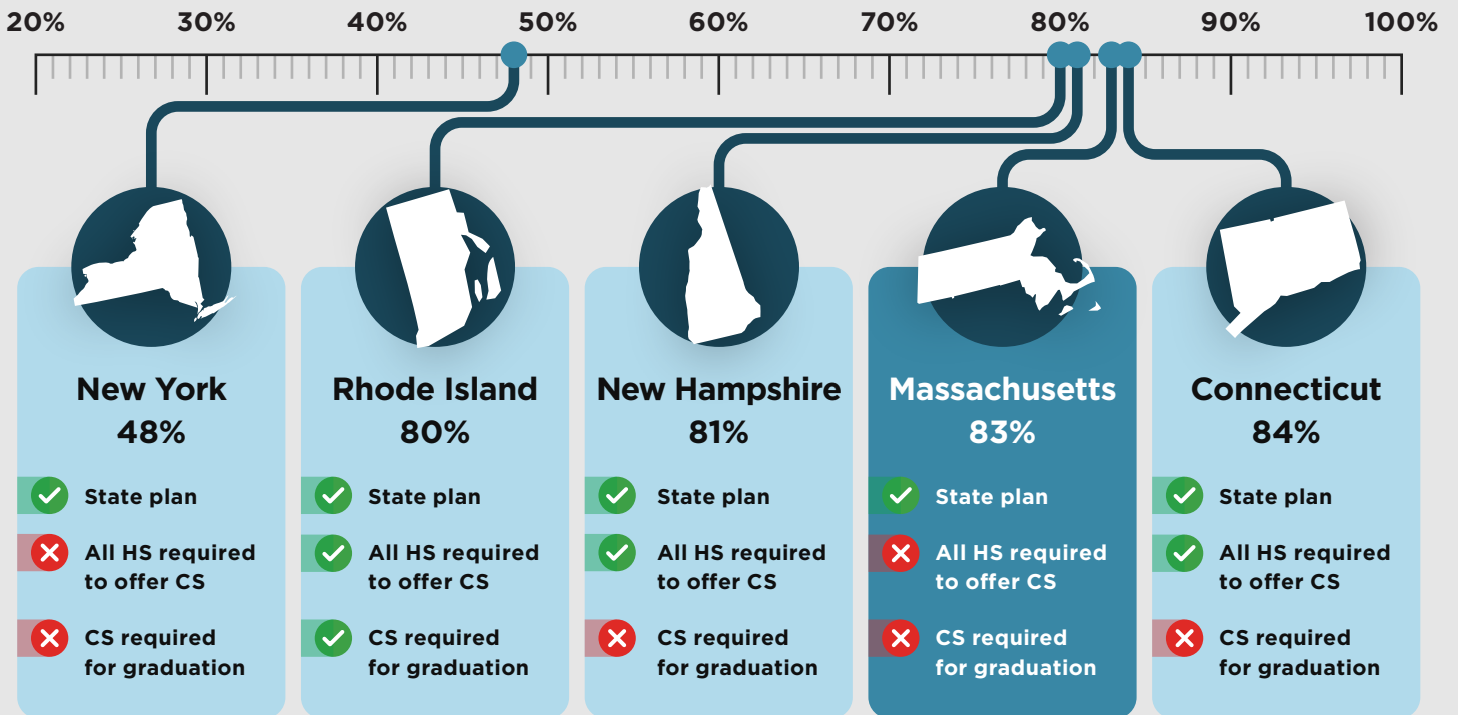
**16,734**  
In 2023, MA averaged 16,734 open computing jobs each month

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**\$127,849**  
These jobs have an average salary of \$127,849

\*AL, AR, AZ, CT, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, MS, NC, ND, NE, NJ, NM, NV, NY, OK, OR, PA, RI, TN, TX, UT, VA, VT, WV, WI

### Comparative Access to Computer Science Courses (percentage of high schools offering)





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## Ten Policies to Make Computer Science Foundational

1.

Create a **statewide plan** for K-12 computer science



2.

**Define computer science** and establish standards for K-12 computer science



3.

**Allocate funding** for rigorous computer science teacher professional learning



4.

Implement **clear certification pathways** for computer science teachers at elementary and secondary levels



5.

Create university programs to **encourage all preservice teachers** to gain exposure to computer science



6.

Establish **dedicated computer science** positions in a state education agency



7.

**Require that all schools offer computer science** with appropriate implementation timelines



8.

**Allow computer science to count** toward a core graduation requirement



9.

Allow **computer science to satisfy an admission requirement** at higher education institutions



10.

**Require that all students take computer science** to earn a high school diploma



## What Has Massachusetts Done to Advance Computer Science Education?

Massachusetts was one of the first states to have a dedicated position within the Department of Elementary and Secondary Education.

Teachers with or without existing licensure can obtain a 5-12 certification through the state-developed (MTEL) subject test.

## How Can Massachusetts Increase Opportunities for Students?

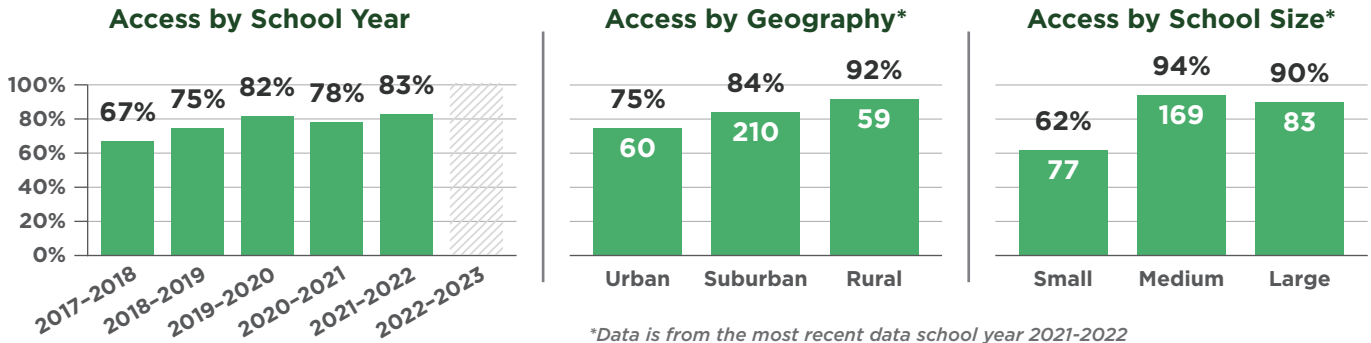
Massachusetts should fund professional development opportunities for teachers to ensure there are enough teachers prepared to teach computer science in every school.

Massachusetts should adopt a graduation requirement for all high school students in computer science.



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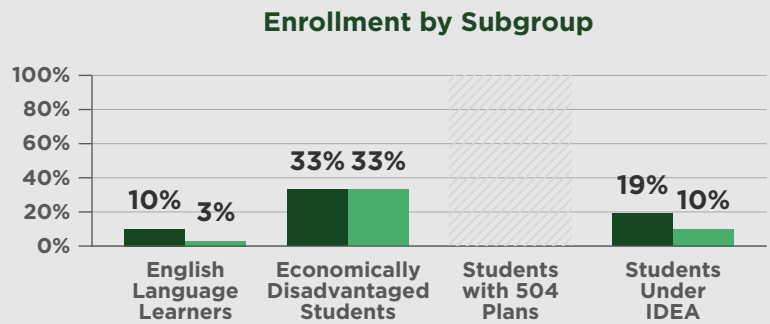
## Percentage of Public High Schools Offering Foundational Computer Science



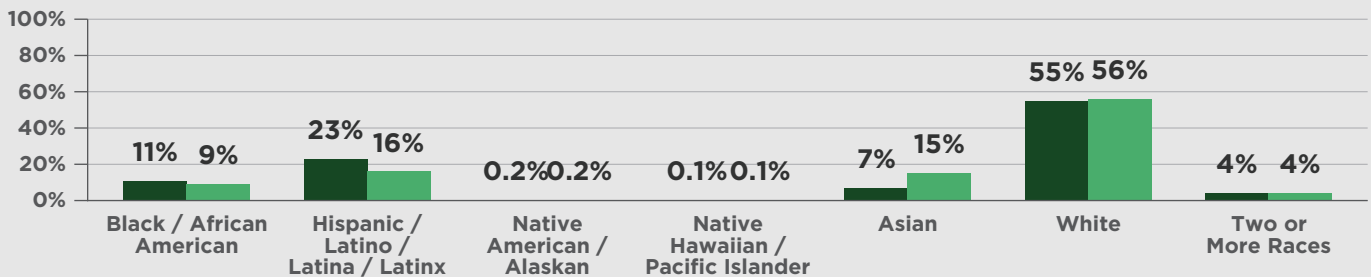
## Participation in Foundational High School Computer Science by Student Demographics

6.6% of high school students took foundational computer science in 2021-2022

29% of students who took foundational computer science were female



### Enrollment by Race / Ethnicity



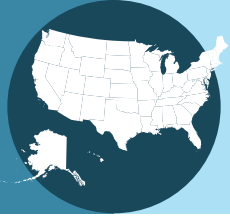
Hispanic students are 1.5 times less likely to take foundational computer science than their white and Asian peers

- Student Demographics 9-12
- Participation in Foundational Courses

## K-12 Access and Participation in Computer Science

52% of middle schools\*\* are teaching foundational computer science education, with an enrollment of 8,695 students.

\*\*64% of middle schools reported course offerings and among those schools 52% reported teaching foundational computer science



# UNITED STATES

## Percentage of Public High Schools Offering Foundational Computer Science Nationally

