

# Computer Science Education



## The Big Idea:



High-quality computer science education is key to ensuring that Alabama students can compete in a changing world.

## What is computer science & why should we teach it to students?

Computer science is the design, creation and use of computer software and systems. People working in computer science jobs do a variety of tasks, including programming apps and websites, designing efficient ways to send and receive information through technology, as well as the study of the algorithms that power computers. Every company today relies on technology and computing to some extent. Design and management of websites and applications, accounting software, payment systems, and more are just a small part of the business world. For manufacturing or engineering companies, advanced technology is taking the place of employees doing strenuous, repetitive tasks by hand. While many are fearful of the jobs that will be lost to automation, many more high-salaried careers will open up in the creation and management of the new technology being used in manufacturing. According to Code.org, there are 6,032 open computing jobs in Alabama with an average salary of \$86,870.

## What is a high-quality computer science course?

A high-quality computer science course teaches students why and how computers work. Computer science classes build on computer literacy, educational technology, digital citizenship, and information technology to teach students coding and computational thinking, or problem-solving based on steps to be carried out by a computer, and gives students an understanding of how computers and technology impact their lives and the world around them.

- **Elementary (K-5):** computer science is integrated into other core courses while building computational thinking skills.
- **Middle school (6-8):** computer science and coding are introduced to students with the intent of building interest and engagement.
- **High School (9-12):** a number of courses are offered which provide a survey of computer science and coding and some which go in-depth on coding in specific programming languages.

## The State of Computer Science in Alabama

As more computing jobs become available, Alabamians need to be prepared to excel in them to grow the economy and bring employers to the state. Teaching computer science to K-12 students is the first step to ensuring that Alabama is ready to move into the future. The 2019 Computer Science Bill passed by the Alabama legislature required all schools to offer high-quality computer science courses in every school in Alabama, beginning in high schools by 2020-2021 school year, in middle schools by the 2021-2022 school year, and in elementary schools by the 2022-2023 school year. 76% of middle and high schools met this legislative requirement in 2021-2022, leaving 164 schools not meeting requirements.

- In the 2021-2022 school year, Alabama had 35,679 students enrolled in computer science courses, a 96% increase over the previous year's enrollment of 18,171.
- Also for 2021-2022, Alabama had 207 more computer science teachers than the year before, for a total of 648 computer science teachers in classrooms, a 47% increase.