

# Computer Science Standards

In 2014, Governor Brown signed AB1539 (Hagman), a bill that requires that the Instructional Quality Commission (IQC) consider developing and recommending standards to the State Board of Education (SBE) before July 31, 2019, and that this requirement only applies if a related appropriation is made in a future budget act.

The purpose of this informational brief is for ACCESS members and allies to consider the pros and cons of developing computer science standards in California. As we pursue an equity-minded agenda to increase access to computer science, facts and information will help us consider the best strategies to accomplish our goals.

## Why CS Standards?



### Why are standards important?

Standards are guideposts for schools. Educators and families use them as a tool to focus on what students are expected to learn in each grade. These standards become the basis for the way teachers are prepared, what they teach and what students will learn and be able to do. Standards help determine how the learning is measured to make sure we are meeting our goals. And, standards provide an element of consistency from course to course and classroom to classroom.

### What are the challenges of having computer science standards?

Critics argue that having rigid standards and standardized tests discourages schools from being innovative and inspiring creativity in their students. Especially in a field like computer science that is rapidly evolving, standards are difficult to update. The process for developing standards can be lengthy, arduous and costly.



### Can standards support equity and access?

We know that access and opportunities to computer science education vary across race and socioeconomic lines. Standards could help provide a systematic approach that ensures all students, including underrepresented students in CS, have equal access to high quality CS educational opportunities.



sources: greatschools.org,pta.org,

## Who, When, How



### Timeline

Developing core academic standards in CA is a lengthy 2-step process. For example, California's Next Generation Science Standards took six years to develop and approve, and then a separate process to adopt the curriculum frameworks that guide successful implementation.



### CS Education Advisors

A broad-based team of California's most respected and knowledgeable educators, university professors, researchers, computer science specialists, and industry experts will be assembled and the process will include several public input periods and external review by many stakeholders.



### State Board of Education

The Instructional Quality Commission is an advisory to the State Board. The State Board of Education directs the IQC to do this work and will play an integral role in determining the direction the CS standards will take.



### Funding

The State Board of Education would need to allocate funding to support the development of CS standards and/or legislation would need to be passed in order to create a budget item to support this process.

## Who else has CS Standards?



### Massachusetts

Massachusetts Computing Attainment Network (MassCAN) collaborated with the Department of Elementary and Secondary Education and the Department of Higher Education to develop Computer Science and Digital Literacy Standards. These will be released in fall, 2015.



### Georgia

Georgia's standards are in CTE: Middle school standards developed in 2009 and high school standards developed 2013-2014.

<http://www.gadoe.org/Curriculum-Instruction-and-Assessment/CTAE/Pages/Business-and-Computer-Science.aspx>



### Texas

Texas released K12 standards in 2011 and are programming-centric.

<http://ritter.tea.state.tx.us/rules/tac/c/hapter126/index.html>



### Other states working on standards:

Washington  
Indiana  
Arkansas  
Florida  
Maryland



### Cities working to develop CS Standards:

Los Angeles USD  
San Francisco USD  
New York City DoE



### Other countries with CS standards:

Israel  
United Kingdom  
Germany  
Italy  
Scotland  
Australia

## What about national standards in CS?



The Computer Science Teachers Association first designed the CSTA K-12 CS Standards with the expectation that state governing bodies, such as Departments of Education would use them to create state or national standards in schools. Developed in 2011, these standards provide a basis for updating the CS education education approaches.

<http://csta.acm.org/Curriculum/sub/K12Standards.html>

CSTA standards helped CS standards align with the Information Communications Technology Standards for Career Technical Education.

Should CS standards be aligned with the Common Core?

## Are there alternatives to statewide CS standards?

Currently in California, there are informal CS standards that are aligned with the Information Communications Technology Standards for Career Technical Education.

Developing California Computer Science "guidelines" or "frameworks" is an alternative to a formal state standards process. A less time-consuming and costly process, guidelines or frameworks could more easily adapt to the changing landscape in computer science education.

To stay informed about computer science education in California, become a subscriber to ACCESS. [www.access-ca.org](http://www.access-ca.org)

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