Item 3.A.1.

Attachment 2

Education Technology Committee

March 22–23, 2018   
Page 1 of 3

# Guidelines for the Development of Computer Science Standards for California Public Schools, Kindergarten through Grade Twelve (CA Computer Science Standards)

Per California *Education Code* Section 60605.4, "On or before July 31, 2019, the Instructional Quality Commission shall consider developing and recommending to the state board computer science content standards for kindergarten and grades 1 to 12, inclusive, pursuant to recommendations developed by a group of computer science experts." The following proposed guidelines are based on testimony received at three focus groups and are intended to direct the work of the expert Computer Science Standards Advisory Committee (CSSAC), to be convened by the State Superintendent of Public Instruction in consultation with the State Board of Education.

The *CA Computer Science Standards* shall:

* 1. Include an introduction that:

1. Explains the importance of prioritizing the goal of equity and access in computer science education and describes underserved populations (including girls, low-income students, homeless students, rural students, African American and Latino students, students who are English learners, students with disabilities, and foster youth);
2. Clearly states the basic overarching purpose and goals of computer science instruction;
3. States a clear definition of computer science and clarifies the distinction between computer science and digital literacy and citizenship.
   1. Provide substantive guidance while also allowing for flexibility and innovation across LEAs to determine from a variety of approaches how best to incorporate computer science into their curricula based on local capacity and context;
   2. Be written in language accessible to teachers, curriculum leaders, and students;
   3. Utilize work done by education stakeholders, including but not limited to other states who have adopted computer science standards, the national *K–12 Computer Science Framework*, and national organizations such as: the International Society for Technology in Education, the Computer Science Teachers’ Association, Project GUTS, Code.org, and the Partnership for 21st Century Skills;
   4. Be designed for the grade spans K–2, 3–5, 6–8, 9–12 and include options for full courses in middle and high school;
   5. Reflect an awareness of industry trends and the dynamic nature of the computer science industry;
   6. Describe the concepts and practices that a student should know and be able to do in computer science in kindergarten through grade twelve (K–12);
   7. Be vertically aligned and coherent across grade spans;
   8. Be written so that they can be embedded into the early education curriculum;
   9. Contain concepts and practices that can be learned without the use of a computer;
   10. Be computing language, hardware, and platform independent;
   11. Detail a progression of learning that provides all K–12 students with opportunities to learn computer science and provides for multiple entry points;
   12. Be consistent with, supportive of, and showing integration with all other SBE-adopted curriculum standards;
   13. Emphasize the artistic nature of computer science as a creative endeavor;
   14. Focus on perseverance in solving real-world or community-based problems (e.g., issues of accessibility for software users);
   15. Consider including activities such as:
4. Creating an original program according to an iterative design process that involves interaction between the creator and user;
5. Creating computational artifacts that students enjoy, artifacts that consider the needs and wants of others, and artifacts that satisfy the needs of the community;
6. Creating modular software;
7. Writing, reading, and modifying existing algorithms or code.
   1. For secondary grades, be compatible with any University of California approved computer science course and the California Standards for Career Technical Education Career Pathways;
   2. Address the legal and safe use of all of their personal devices without harming themselves or others; Encourage student critical thinking and discussion about the broader ethical and social implications and questions related to the growing capabilities of technology, such as spreading of fake news through social media, the loss of jobs to automation, and others;
   3. Include a glossary of computer science terms used throughout the standards;
   4. Include appendixes to support the flexible implementation of the standards for both college and career readiness as well as life-long learning.