



Computer Science Standards Input Report

Background

During the 2016 legislative session, the Colorado General Assembly passed [House Bill 16-1198](#), which requires the Colorado Department of Education (CDE) to develop academic standards for computer science for secondary students during the next standards revision cycle. Pursuant to 22-7-1005(6), the state must review and revise the Colorado Academic Standards on or before July 1, 2018.

CDE conducted three listening sessions across the state to solicit input on the content of the computer science standards and the standards development process. In September 2016, CDE issued a request for proposals (RFP) to identify a vendor to assist in these listening sessions. In response to the RFP, CDE contracted with Education Commission of the States (ECS) in October 2016 to jointly conduct three in-person stakeholder input sessions, one each in Pueblo, Denver, and Grand Junction. Sessions were facilitated by ECS, and ECS and CDE staff collaborated in serving as facilitators and note takers. CDE conducted a fourth listening session via webinar.

Introduction

The 2016 *Computer Science Standards Input Meetings: Summary of Findings* report written by ECS is a report summarizing key highlights gleaned from four stakeholder sessions held across the state. The report consolidates input across meeting sites and groups responses by the following key discussion items put forward to stakeholders at each session:

- Suggested components of Colorado’s computer science definition.
- Indicators of success:
- Guiding principles: *CDE proposed as guiding principles: transparent, inclusive, research-informed, consistent with statutory requirements, and asked:*
- What are the most important issues for the committee [establishing voluntary computer science standards for secondary students] to address?
- What resources should the committee utilize?
- What should be the composition of the committee?

For K-12 and postsecondary stakeholders only:

- How should Colorado approach the development of courses that may count for mathematics or science high school credits?
- If districts were to move forward with offering graduation credit for computer science, what issues would we need to address?
- What other issues or questions do you foresee related to this?

Suggested Components of Colorado’s Computer Science Definition

The 2016 legislation did not define “Computer Science” within statute, except for explicitly calling out coding; therefore, stakeholders felt that it was important for Colorado to have an operational definition of computer science to guide the work ahead, in standards development and district implementation of computer science in schools.



Common themes emerged across sessions and fell into four broad categories:

- Computational Thinking
- Computing Systems
- Contexts and Uses
- Digital Citizenship

Participants extended beyond these themes into key components underlying each (these can be investigated further within the full report).

Important Issues for the Computer Science Standards Committee to Address

After the introduction to the statutory requirements for secondary computer science standards development, the stakeholder groups were asked to convey to discuss what they felt were the most important considerations the computer science standards committee would need to address. Across the three stakeholder groups (K12 educators, Postsecondary, and Business/other) a broad array of topics emerged for consideration:

- Establishing a Colorado definition of Computer Science
- P-20 alignment
 - Creation of computer science standards for earlier grades (e.g., PK-8 or K-8)
 - Alignment of secondary standards to postsecondary expectations
- Not reinventing the wheel
- Relevance/fluidity/adaptability (nimbleness)
- Balance of breadth and depth in standards
- Equity
- Designed with business/industry in mind

Resources the Committee Should Utilize

In addition to important issues the computer science standards committee would need to address, stakeholders were asked about resources the committee should utilize throughout the standards development process. Across the three stakeholder groups (K12 educators, Postsecondary, and Business/other) a broad array of resources emerged for consideration:

- Existing Standards (International, National, State, District, Local)
- Postsecondary faculty/institutions
- Education research
- Business/industry organizations (e.g., Colorado Technological Association, Colorado Workforce Development Council)
- Industry certifications

In addition to this summary, committee members should also utilize other resources, such as:

Education Commission of the States (2016). *Computer Science Standards Input Meetings: Summary of Findings*.

Nearby Education Research (2016). *K-12 Computer Science Standards: Research Support for the Colorado Department of Education*.