



VIRGINIA BOARD OF EDUCATION

AGENDA ITEM

Agenda Item: E

Date: June 21, 2024

Title: Final Review of the Proposed 2024 Computer Science *Standards of Learning*

Presenter: Em Cooper, Deputy Superintendent for Teaching and Learning

Purpose of Presentation

Action required by state or federal law or regulation.

Executive Summary

The Board of Education (“Board”) proposed revised 2024 Computer Science *Standards of Learning* that describe the Commonwealth’s expectations for student learning and achievement in grades K-12 Computer Science. Periodic revisions of the standards are necessary to update content, clarify important concepts, and reflect current academic research and best practices in computer science education.

In April 2024, the Board received the proposed 2024 Computer Science *Standards of Learning* for first review. From April 25, 2024, to May 31, 2024, the Board accepted written public comment and held [seven public hearings](#) across the Commonwealth. The final version reflects edits made by Virginia Department of Education (“VDOE”) staff based on feedback and public comments. The proposed 2024 Computer Science *Standards of Learning* represents six elementary grade levels (K-5), three middle school grade levels (6-8), and four standalone elective courses, including Middle School Computer Science Elective, and three high school courses: Computer Science Foundations, Computer Science Principles, and Computer Science Programming.

The proposed 2024 Computer Sciences *Standards of Learning* are not intended to encompass the entire curriculum for a given grade level or course. School divisions are encouraged to incorporate the standards into a comprehensive high-quality instructional program.

This item supports Priority 1 of the Board’s Comprehensive Plan 2024–2029: to set and help every learner meet high expectations.

Action Requested

Final review: Action requested at this meeting.

Superintendent’s Recommendation

The Superintendent of Public Instruction recommends that the Board approve the proposed 2024 Computer Science *Standards of Learning* to be fully instructionally implemented in 2025-2026 and authorize the VDOE to make final clarifying and/or technical edits.

Rationale for Action

Section [22.1-253.13:1](#)(B) of the Code of Virginia requires that the SOL be revised every seven years. The first Computer Sciences *Standards of Learning* were adopted in 2017 and in accordance with the established revision year cycle are due for revision under state law.

Previous Review or Action

Date: March 23, 2023

Action: [Report on the Timeline for the Computer Science Standards of Learning Review and Revision Process](#)

Date: April 26, 2024

Action: [Board accepted the Proposed 2024 Computer Standards of Learning for First Review](#)

Background Information and Statutory Authority

Section [22.1-253.13:1\(B\)](#) of the Code of Virginia requires a review of the Board’s Standards of Learning every seven years:

The Board of Education shall establish a regular schedule, in a manner it deems appropriate, for the review, and revision as may be necessary of the Standards of Learning in all subject areas. Such review of each subject area shall occur at least once every seven years. Nothing in this section shall be construed to prohibit the Board from conducting such review and revision on a more frequent basis.

Public Comment

In-person [public hearings](#) were held in Abingdon, Charlottesville, Chesapeake, and Fairfax between May 6-20, 2024. In addition, three virtual public hearings were held between

May 1-May 15, 2024. There were five attendees in total at the four in-person public hearings with three of the attendees providing comments. There were thirteen attendees in total at the three virtual public hearings with two of the attendees providing public comment.

Public comments were also collected through an electronic form submission and via email at vdoe.computerscience@doe.virginia.gov. A total of 14 individual submissions of public comments were received during the written public comment period from April 25, 2024, through May 31, 2024.

The following chart provides information regarding the written public comments received and the public hearings that were held regarding the draft 2024 Computer Science *Standards of Learning*.

Source of Comment	Dates	Number of Responses
30 - Day Public Comment Period (online form)	April 25, 2024 – May 31, 2024	<ul style="list-style-type: none"> Online responses- 12
Written Public comment (email)	April 25, 2024 – May 31, 2024	<ul style="list-style-type: none"> Emails received - 2
In-person Public Hearing Sessions	May 6 – May 20, 2024	<ul style="list-style-type: none"> Abingdon – 0 speakers [0] attendees Charlottesville – 0 speakers [0] attendees Chesapeake – 3 speakers [3] attendees Fairfax – 0 speakers [2] attendees
Virtual Public Hearing Sessions	May 1 – 15, 2024	<ul style="list-style-type: none"> May 1 – 1 speaker [8] attendees May 9 – 0 speakers [4] attendees May 15 – 0 speakers [1] attendees

**Attendees do not include Virginia Board of Education members or Virginia Department of Education staff in attendance.*

Comments were also received from the following:

- Virtual Learning Advisory Council

- Virginia Computer Science Supervisors (Division Leaders)

Themes that appeared from the public comment window:

- Appreciation for format, rigor, clarity of learning expectations, and explicit incorporation of computational thinking.
- Misconceptions of computer science as a discipline.
- Adequate time for teachers to provide instruction that is integrated.
- Potential lack of understanding and efficacy of computer science concepts and terminology.

VDOE staff analyzed public comment, reviewed the requested edits to the proposed 2024 Computer Science *Standards of Learning*, and provided recommendations. VDOE staff considered all recommendations made by the public, the following of which have been specifically addressed in the revised SOL.

1. Completed technical edits for grammatical errors and typos to improve clarity.
2. We received public feedback to include standards that address the impact of the usage of technological devices. The impact of screen time on health and wellness was not addressed in the standards submitted for first review. The revision consists of the inclusion of screen time to address wellness, health, and relationships and are embedded in the “Impacts of Computing” content strand of the CS Standards.
3. One request was to also include machine learning as early as Kindergarten.
 - a. It is referenced as artificial intelligence (AI) and also as emerging technologies. AI is primarily in the “Data and Analysis Impacts of Computing” and the “Computing Systems” strands.
 - b. The focus of elementary is to build strong computer science literacy and understand that serves as foundational knowledge for more ‘advanced’ topics such as machine learning and AI.
 - c. Strengthened K-3 machine learning concepts for better vertical alignment and with machine learning topics (Grades 4 and up).

The final versions of the revised SOL have been edited after consideration of the public comment received.

Timetable for Further Review/Action

Following the Board’s approval of the revised SOL, VDOE staff will post a final version of 2024 Computer Science *Standards of Learning* on the VDOE website. VDOE proposes the following implementation timeline and communication plan:

School Year	Timeframe	Action	Communication	Method
Summer 2024	June 2024	Board of Education approves the 2024 Computer Science <i>Standards of Learning</i>	Announce approval of the revised SOL implementation, timeline, and expectations for incorporating the new standards.	Superintendent’s Newsletter, VDOE social media, Teacher Direct, and other communication channels.
Summer 2024	June – July 2024	Conduct an audit of 2017 instructional resources and announce the Advancing Computer Science Education Grant RFP	Announce Request for Proposals.	Superintendent’s Newsletter and other communication channels.
2024 - 2025	Summer 2024	Final versions of the 2024 Computer Science <i>Standards of Learning</i> posted	Announce posting of final versions and expectations for incorporating the new standards into a comprehensive high quality instructional program.	Superintendent’s Newsletter, VDOE social media, Teacher Direct, and other communication channels.
2024 - 2025	Fall 2024	VDOE provides Instructional Guides (IGs) aligned with the 2024 Computer Science <i>Standards of Learning</i>		
2024 - 2025	Fall 2024/Winter 2025	VDOE convenes teams of teachers and specialists to develop instructional resources aligned to the 2024 Computer Science <i>Standards of Learning</i>	Announce posting of resources	

Summer 2025	Spring/Summer 2025	VDOE and/or educational partners provide professional learning on the 2024 Computer Science <i>Standards of Learning</i>	Announce professional learning and direct and indirect regional support options	Superintendent’s Newsletter, Teacher Direct, and other communication channels
2025 - 2026		Instruction aligned fully to 2024 Computer Science <i>Standards of Learning</i>		
2026 - beyond	Ongoing	VDOE and educational partner develop resources aligned to the 2024 Computer Science <i>Standards of Learning</i> and provide professional learning opportunities to school divisions and teachers.		

Impact on Fiscal and Human Resources

The revisions can be absorbed by the agency’s existing resources at this time. If the agency is required to absorb additional responsibilities related to this activity, other services may be impacted. Additional resources are being considered to support implementation.