| **Virginia Board of Education Agenda Item** | **Seal of the Commonwealth of Virginia** |
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## Agenda Item: H

## Date: June 20, 2019

## Title: Final Review of the Proposed Revised 2018 *Science Standards of Learning* Curriculum Framework

## Presenter: Dr. Anne Petersen, Science Coordinator, Office of Science, Technology, Engineering, and Mathematics

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## Purpose of Presentation:

Action required by state or federal law or regulation.

## Executive Summary:

The Standards of Learning are a critical communication with the citizens of the Commonwealth, parents, the business community, and higher education, because the standards convey expectations and intended outcomes for K-12 education. Equally as important, the standards and the frameworks serve as the key guidance for instructional leaders and teachers of science (elementary, middle, high school) in planning science curricula and science programming.

The Board of Education approved the 2018 *Science* *Standards of Learning* on October 25, 2018. The currentstandards may be viewed online at <http://www.doe.virginia.gov/testing/sol/standards_docs/science/index.shtml>.

The 2018 Science Curriculum Frameworks were developed to support teachers and administrators in the instruction of the *Science Standards of Learning*. This document, constructed with the assistance of teachers and science leaders across the Commonwealth, outlines the expectations of students as they demonstrate mastery of the science content and the skills outlined in the Science and Engineering Practices. The *Science Curriculum Framework* is not intended to encompass the entire curriculum for a given grade level or course. School divisions are encouraged to incorporate the Curriculum Framework into a broader, locally-designed curriculum. The Curriculum Framework delineates in greater specificity the minimum content that all teachers should teach and all students should learn.

In accordance with the approved *Science Standards of Learning* revision timeline, the Department of Education took the following steps to produce the proposed revised *Science Standards of Learning Curriculum Framework* for the Board’s review:

* Posted Superintendent’s Memo #105-19, May 3, 2019, in order to solicited review input from teachers, administrators, curriculum supervisors, and the general public,
* Received public comments from stakeholders on the proposed *2018 Science Standards of Learning Curriculum Framework*
	+ Received 124 sets of comments from educators, science education organizations, businesses, and school divisions.
	+ Conducted four webinars with the intent of informing stakeholders on the changes to the structure of the framework as well as to solicit public comment.
* Reviewed public comment to revise the proposed *2018 Science Standards of Learning Curriculum Framework* found in Attachment A.

**Summary of Major Elements:**

The attached drafts of the Proposed Revised 2018 *Science Standards of Learning Curriculum Framework* include revisions since first review in response to public comment, as listed.

Proposed Revised 2018 *Science Standards of Learning Curriculum Framework*

* Edits to provide constancy and parallelism in language vertically in science.
* Grammar and language edits.
* Edits to more clearly articulate or correct science content expectations.
* Inclusion of an engineering design model and an explanation of computational thinking and an explanation of how each of these can be used to support science learning.

All edits found in the proposed revised drafts have been tracked using the following system:

* a single underline (sample) indicates content added to the proposed revised 2018 Science Standards of Learning Curriculum Framework; and
* a single strikethrough (~~sample~~) indicates content deleted from the 2018 Science Standards of Learning Curriculum Framework.

Technical edits for grammar, spelling, or suggested rewording are not indicated in the revised proposed 2018 Science Standards of Learning Curriculum Framework.

## Action Requested:

Final review: Action requested at this meeting.

## Superintendent’s Recommendation:

The Superintendent of Public Instruction recommends the Board approve for final review the proposed revisions to the 2018 *Science Standards of Learning* Curriculum Framework.

**Rationale for Action:**

The *Code of Virginia* requires the review and revisions of the Standards of Learning in each subject area every seven years. Action by the Virginia Board of Education allows the Virginia Department of Education to provide school divisions with the revised 2018 *Science Standards of Learning* Curriculum Framework.

## Previous Review or Action:

Previous review and action. Specify date and action taken below:

Date: April 25, 2019

Action: First Review

## Background Information and Statutory Authority:

The Board of Education has made a commitment to maintain rigorous and relevant expectations for student learning that meet or exceed national and international benchmarks for college and career readiness. The proposed revised *Science Standards of Learning* Curriculum Framework provide support for the instruction of these standards.

*Code of Virginia*, Section 22.1-253.13:1-B… “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…”

This Board item relates to Priority 1 of the *Virginia Board of Education Comprehensive Plan: 2018-2023* to provide high-quality, effective learning environments for all students.

Summary of Online Comments on Virginia’s proposed 2018 *Science Standards of Learning*

The public comment period, public hearings webinars, and the online platform for submitting comments were announced through Superintendent’s Memo, the VDOE website, and through multiple communication channels.

* Overall positive response to the bullets used to indicate the inclusion of a Science and Engineering Practice into an Essential Knowledge and Practices.
* Overall positive response to the introduction of themes in grades K-6.
* Several stakeholders expressed negative responses to the addition of the Engineering components of the Essential Knowledge and Practices.
* Additional resources were requested to support the expectations in the Essential Knowledge and Practices to include support for conducting investigations and engineering design.
* Concern over the rigor evidenced in some of the expectations outlined in the Essential Knowledge and Practices.
* Needed clarification of what students are responsible to know in curriculum framework and the role of the Enduring Understandings for instruction.
* Requests for specific terms and details to be used in instruction and that will inform test preparation.
* Requests to revise the standards in fourth and fifth grade.
* Suggestions for clarification of language describing concepts and reduce opportunities for the development of later student misconceptions.
* Technical edits were proposed.
* Feedback and input to increase vertical alignment of content within strands.

Many of these comments led to the revisions in the attached 2018 *Science Standards of Learning* Curriculum Framework and will be used to shape technical assistance through the implementation process.

## Timetable for Further Review/Action:

Following the Board of Education’s approval of the Proposed Revised 2018 *Science Standards of Learning* Curriculum Framework, the Department of Education will provide technical support to divisions for the implementation of the standards and curriculum framework.

Table 1

2018 Science Standards of Learning Anticipated Implementation Timeline and Communication Plan

| **School Year** | **Date** | **Action** | **Communication** | **Method** |
| --- | --- | --- | --- | --- |
| 2019 | April | First Review of Proposed *2018 Science Standards Curriculum Framework* | Announce initial review of the 2018 Science Standards Curriculum Frameworks | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| April | Draft version of the *2018 Science Standards Curriculum Frameworks* open for public comment. | Announce draft curriculum framework open for public comment | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| May | Public Comment WebinarsMay 8, 2019 7:30 AM & 4:00PMMay 14, 2019 4:00 PM & 6:00 PM | Announce draft curriculum framework webinars for public comment | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| June | Final Review of the proposed *2018 Science Standards Curriculum Framework* | Announce final review of the 2018 Science Standards Curriculum Frameworks and timeline of implementation | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| Summer | Construct videos to be posted online to support the instruction of the 2018 *Science Standards of Learning.* | Announce VDOE resources to support instruction of the 2018 *Science Standards of Learning* | VDOE social media, TeacherDirect, and other communication channels |
| Summer | School divisions begin incorporating 2018 *Science* SOL and CF into written curricula. |  |  |
| Summer | Develop additional performance assessment exemplars and common rubrics that align to the *2018 Science Standards of Learning* and to support VDOE professional development. | Develop and integrate aligned performance assessments into VDOE and support organization performance assessment professional development. | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels including direct communication with VDOE partners with PA. |
| Fall | VDOE provides professional development on the changes to the SOL and CF | Announce professional development  | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| Fall/Winter | VDOE conducts the textbook review process in accordance with previously approved BOE textbook adoption timeline | Announce the process and call for nominees to serve | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| 2019-2020 | Full year | 2010 *Science* SOL and 2018 *Science* SOL included in the written and taught curricula  | Detail instruction and assessment timeline and expectations | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| Fall | VDOE provides professional development on the changes to the SOL and CF | Announce professional development | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| Spring | VDOE completes the textbook review process and seeks approval from the Board of Education | Announce completion | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| Summer | School divisions continue incorporating 2018 *Science* SOL and CF into written curricula |  |  |
| 2020-2021 | Fall/Winter | VDOE provides SOL Practice Items aligned with the 2018 *Science SOL*  | Announce posting of resource | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| Fall and Spring | SOL assessments measure the 2010 *Science* SOLand include field test items measuring the 2018 *Science* SOL |  |  |
| 2021-2022 | Full year | Written and taught curricula reflect the 2018 *Science* SOL | Detail instruction and assessment timeline and expectations | Superintendent’s Memo, VDOE social media, TeacherDirect, and other communication channels |
| Fall and Spring | SOL assessments measure the 2018 *Science* SOL |  |  |

**Impact on Fiscal and Human Resources:**

The Department of Education administers the state standards and curriculum framework review process and the implementation of those standards and curriculum, once approved by the Board. The agency’s existing resources can absorb the standard review responsibility at this time.