**This advisory recommendation has not been approved by the Instructional Quality Commission or the State Board of Education.**

# REVIEW PANEL ADVISORY RECOMMENDATION 2018 SCIENCE ADOPTION OF INSTRUCTIONAL MATERIALS

| **Publisher** | **Program** | **Grade Level(s)** |
| --- | --- | --- |
| Carolina Biological Supply Company | STCMS (Science and Technology Concepts Middle School) | 6–8 |

## Program Summary:

STCMS (Science and Technology Concepts Middle School) includes: Teacher Edition (TE), Student Guide (SG).

## Recommendation:

STCMS (Science and Technology Concepts Middle School) is not recommended for adoption for grades 6–8 because the instructional materials do not include content as specified in the Next Generation Science Standards for California Public Schools (CA NGSS) and do not meet all the Criteria in Category 1 or have strengths in Category 4.

## Criteria Category 1: Alignment with the CA NGSS Three-Dimensional Learning

The program does not include content as specified in the CA NGSS and does not include a well-defined sequence of instructional opportunities that provides a path for all students to become proficient in all grade-level performance expectations.

**Citations:**

* Criterion #1: Standards Not Met:
  + Grade 6, PE MS-ESS3-5, Weather and Climate Systems TE, Tab 6 Lesson 10 pp. 156-157, student sheets 10.1 A-I pp. 2 of 3 Question 3. The performance expectation requires students to ask questions to clarify evidence of the factors that have caused the rise in global temperatures. Instead students are asked to respond to questions and write an “additional question” without guidance related to clarifying evidence.

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* + Grade 7, PE MS-ETS1-4, Ecosystems and Their Interactions, TE, Tab 6, Lesson 11, pp. 246-247. The performance expectation asks students to develop a model to generate data for iterative testing such that an optimal design can be achieved. The cited performance assessment lacks development of a model to
  + generate data and only asks students to discuss existing solutions and come to a consensus on one plan. No iterative testing is required of the students.
* Criterion #12: Grade 6, Earth’s Dynamic Systems, TE, Tab 1, Lesson Planner pp. 16-41; Grade 7, Structure and Function: TE: Tab 6, Lesson 7 Receptors pps. 159-160; Grade 8, Energy, Forces and Motion, TE, Tab 3, Meeting Standards, pp. 2-22. In grades 6-8, student assignments do not make linkages and are not consistent with the California English Language Development Standards: Kindergarten Through Grade 12 (CA ELD Standards).

## Criteria Category 2: Program Organization

The organization and features of the instructional materials support instruction and learning of the CA NGSS.

**Citations:**

* Criterion #1: Grade 6-8 (all components) TE, Tab 1, Lesson Planner. We found evidence in all grades where sequential organization of the material provides structure concerning what students should learn each year and allows teachers to convey the science content incorporating the three-dimensional learning expressed in the CA NGSS.
* Criterion #5: Grade 6-8 (All components) TE, Tab 1, Lesson Planner Pacing Guide. Examples exist in all grade levels where the instructional resources are grade-level specific and provide content for 180 days of instruction for at least one daily class period, including an estimate of the necessary instructional time.
* Criterion #6: Grade 6, Earth’s Dynamic Systems TE, Tab 1, Lesson Planner, pp. 4-32; Tab 3 All Standards, All Students, pp. 19-22; Grade 7, Genes and Molecular Machines TE: Tab 1 Lesson Planner pp.4-35; Tab 3, All Standards, All Students, pp. 19-22. We found evidence in all grades where the content was well organized and presented in a manner consistent with providing all students an opportunity to achieve the essential knowledge and skills described in the CA NGSS and the CA Science Framework.
* Criterion #9: Grade 6, Earth’s Dynamic Systems www.ssec.si.edu/earths-dynamic-systems (Lesson Links, Lesson 2- When the Earth Shakes); Grade 7, Structure and function www.ssec.si.edu/structure-and-function (Extension Activities), Lesson 1 Pre-Assessment, Grade 8, Matter and its Interactions, TE, Tab 6, Lesson 4, pp. 72-73. We found evidence in each grade level of resources that encourage the meaningful use of technologies to investigate phenomena that cannot be directly experienced. The materials support teachers as they introduce students to computational thinking and provide guidance to teachers on how science instruction may be improved by the effective use of library media centers and information literacy skills.

## Criteria Category 3: Assessment

The program includes multiple models of both formative and summative assessment tasks for measuring what students know and are able to do and provides guidance for teachers on how to use scoring rubrics and interpret assessment results to guide instruction.

**Citations:**

* Criterion #2: Grade 6, Earth’s Dynamic Systems, TE; Tab 6, Lesson 1, pp. 1a-13a; Grade 7, Ecosystems and Their Interactions, TE, Tab 6, Lesson 1, pp. 1a-27; Grade 8, Energy Forces, and Motion, TE: Tab 6 Lesson 1 pgs. iv-13. In grades 6-8, entry-level assessments for each unit are provided to help teachers elicit students’ prior knowledge and preconceptions and gauge their facility for using the SEPs and CCCs.
* Criterion #7: Grade 6, Earth’s Dynamic Systems, TE, Tab 6 Lesson 12, pp. 319c-329. This is an example of a summative assessment designed to provide measures of student progress and attainment of three dimensional learning at the end of a unit.
* Criterion #8: Grade 8, Energy Forces and Motion, TE, Tab 6, Lesson 9, pp. 144-145. This is an example of each unit including both a writing and performance task to assess student progress towards meeting the three dimensions of the CA NGSS.
* Criterion #10: Grade 6, Earth’s Dynamic Systems, TE, Tab 6, Lesson 1, pp. 2-8, Grade 7, Ecosystems and Their Interactions, TE, Tab 6, Lesson 4, pp. 72-84; Grade 8, Energy, Forces and Motion TE, Tab 6, Lesson 7, pp. 104-109. In grades 6-8, assessment tools include multiple measures of student performance as addressed in the assessment chapter in the CA Science Framework.

## Criteria Category 4: Access and Equity

Program materials do not ensure universal and equitable access to high-quality curriculum and instruction for all students and do not provide teachers with suggestions for differentiation for students with special needs.

**Citations:**

* Criterion #1: Grades 6-8, all TEs; Tab 3, All Standards, All Student pp. 19-22; Grades 6-8, all TEs, Tab 2, STCMS in the Classroom, pp.2-5; Grade 6, Space Systems Exploration, Tab 1: Unit Overview pp. 4-9; Grade 7, Ecosystems and Their Interactions, Tab 1, Unit Overview, pp. 4-9; Grade 8, Matter and Its Interactions, Tab 1, Unit Overview pp. 4-9. The materials did not provide differentiated instructional resources sensitive to the needs of individual students and particular assets of all students as outlined in chapter 10 of the CA Science Framework.
* Criterion #2: Grade 6-8, All TEs, Tab 3, All Standards, All Students, pp. 19-22; Grades 6-8, All TEs, Tab 3, Meeting Standards with STCMS, pp. 6-9; Grades 6-8, All TEs, Tab 2, STCMS in the Classroom pp. 2-5; Grade 7, Gene and Molecular Machines Tab 6, p. 104, Questions 5; Grade 8, Energy, Forces, and Motion, Tab 6, p. 114, Question 4d; Grade 6, Weather and Climate System Tab 6, p. 157, Steps 8,9 and 11. The instructional resources fail to provide research-based strategies to address the continuum of English language development levels as outlined in the CA ELD Standards.
* Criterion #4: Grade 6-8 (all Components), Tab 3, All Standard, All Students pp. 19-22. The panel found that teacher resources do not provide sufficient guidance to support all students with respect to differentiation. On page 19, in the strategy section, the Lesson Overview purpose states, “This should be used to assist UDL planning and differentiation for diverse student groups,” but actual differentiation strategies are missing. In the strategy section, the Extension Activities purpose states, “Extension activities allow for differentiated instruction for students who need to be challenged,” however, what is provided (such as G6, Space Systems Exploration Lesson 1): Science [pinhole projectors] found at www.ssec.si.edu/space-systems-exploration) does not include differentiation guidance. Instead, extra activities are given.

## Criteria Category 5: Instructional Planning and Support

The instructional materials provide coherent guidelines for teachers to follow when planning three-dimensional instruction and are designed to help teachers provide effective standards-based instruction.

**Citations:**

* Criterion #2: Grade 6, Earth’s Dynamic Systems, TE, Tab 1, Unit Overview and Lesson Planner, pp. 12-13, Grade 7, Ecosystems and Their Interactions TE: Tab 6 lesson 2 pgs. 27a-29; Grade 8, Electricity, Waves and Information Transfer, TE, Tab 6, Lesson 5, pp. 91a-91b. In Grades 6-8, the teacher resources provide an estimated instructional time for each activity, lesson, and unit which allows for student engagement in the SEPs and engineering design projects.
* Criterion #6: Grade 6, Earth’s Dynamic Systems, TE, Tab 6, p. 31; Exit Slip, Grade 7, Ecosystems and Their Interactions, TE, Tab 4 pp. 1-5, Grade 8, Energy, Forces, and Motion, TE, Tab 7,p. 4 (Lesson Master 8.2.p.1-3). In grades 6-8, classroom activities, end-of-chapter tasks, and assessment tasks are supported with teacher guidance. Assessment Keys and rubrics are provided.
* Criterion #10: Grade 6, Weather and Climate System Tab 6, p. 102; Grade 7, Ecosystems and Their Interactions, Tab 6, p. 200; Grade 8, Energy, Forces, and Motion, Tab 6, p.2. These are examples of each grade introducing a guiding question instead of explicitly stating learning goals to students.
* Criterion #16: Grade 6, Earth’s Dynamic Systems, Tab 6, p. 39e. Grade 7, Structure and Function, Tab 6, p. 111c;Grade 8, Electricity, Waves, and Information Transfer, p.115e; All grade level teacher resources identify preconceptions typical at a grade span.

## Edits and Corrections:

The panel recommends the following edits and corrections:

| # | Grade Level | Component | Page Number(s) | Current Text | Proposed Corrected Text | Reason for Edit |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | 6 | Weather & Climate Systems | Inside front cover | List of standards | Add MS-ESS 3-3 | Part of Grade |

## Social Content Citations: none

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