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

# REVIEW PANEL ADVISORY RECOMMENDATION2018 SCIENCE ADOPTION OF INSTRUCTIONAL MATERIALS

| **Publisher** | **Program** | **Grade Level(s)** |
| --- | --- | --- |
| Green Ninja | Green Ninja Integrated | 6–8i |

## Program Summary:

Green Ninja Integrated includes: Green Ninja Integrated Middle School Science includes: digital subscription to Climate: Scientific Principles and Communication (Grade 6); Resources: Investigative Methods and Conservation (Grade 7); Living Systems: Computational Thinking and Design Solutions (Grade 8).

## Recommendation:

Green Ninja Integrated is recommended for adoption for 6–8i because the instructional materials include content as specified in the Next Generation Science Standards for California Public Schools (CA NGSS) and meet all the criteria in Category 1 with strengths in categories 2–5.

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

The program includes content as specified in the CA NGSS and includes 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 #1.1: Grade 6, Lesson 5.14 From the Water Cycle to Cells, MS-LS 1-1; Grade 6, Lesson 4.5 Reproductive Strategies Part III, MS-LS 3-2; Grade 8, Lesson 2.6 Fossil Forensics, MS-LS4-1; Grade 8, Lesson 5.14 Hovercrafts: Moving on Air, MS-PS2-2; Grade 7, Lesson 2.11 Understanding Hydrocarbons Part I, MS-PS1-1; Grade 7, Lesson 1.14 Rock Cycle Part III, MS-ESS2-1. Program aligns to the CA NGSS for grades 6-8.

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* Criterion #1.2: Grade 8, Lesson 2.14 to Lesson 2.17 Finding Patterns in Evolution. Instructional resources engage students in using text, discourse, and experiential learning to develop mastery of the three integrated dimensions of the CA NGSS: the Science and Engineering Practices (SEPs), Crosscutting Concepts (CCCs), and DCIs.
* Criterion #1.4: Grade 6, Lesson 2.13 to Lesson 2.17 Using the Sun. Instructional resources progressively build students’ abilities to meet all grade-level PEs through a three-dimensional instructional sequence.
* Criteria #1.4: Grade 6, Grade Storyline. Instructional resources progressively build students’ abilities to meet all grade-level PEs through a three-dimensional instructional sequence**.**
* Criterion #1.7: Grade 7, Lesson 2.23 to 2.26 Transportation and Air Quality. Use of primary sources, such as scientific research, case studies, and photographs, are integrated into the three-dimensional learning, as grade-level appropriate.
* Criterion #1.15: Grade 7, Lesson 2.23 to 2.26 Transportation and Air Quality. Instructional resources, where appropriate, examine humanity’s place in ecological systems and the necessity for the protection of the environment (EC Section 60041).Resources include instructional content based upon the Environmental Principles and Concepts developed by the California Environmental Protection Agency and adopted by the SBE (Public Resources Code Section 71301) in context and aligned to the CA NGSS, as exemplified in Appendix 2.
* Criterion #1.15: Grade 6 Overview, Standards Tab - California’s Environmental Principles and Concepts; Grade 7, Lesson 5.13 Staying Above Water; Grade 8, Lesson 6.17 Lexicon of Sustainability Part I. Instructional resources include instructional content based upon the Environmental Principles and Concepts developed by the California Environmental Protection Agency and adopted by the SBE in context and aligned to the CA NGSS, as exemplified in Appendix 2.

## Criteria Category 2: Program Organization

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

**Citations:**

* Criterion #2.1: Grade 6, Grade 6 Overview. Sequential organization of the material provides structure concerning what students learn each year and allows teachers to convey the science content incorporating the three-dimensional learning expressed in the CA NGSS.
* Criterion #2.2: Grade 7, Overview - Science Talk. Instructional resources support teacher questioning strategies as a tool to assess students’ knowledge and skills, promote student-to-student discourse, and guide student learning.
* Criterion #2.7: Grade 8, Lesson 4.15 GMOs Part 1. Resources include explanations to teachers regarding how the SEPs, DCIs, and CCCs work together to support students in making sense of phenomena and/or to design solutions to problems and build toward the PEs of the CA NGSS. Teacher resources support understanding of how PEs are developed within units and across units throughout a year.
* Criterion #2.8: Grade 6 U1 Overview - Unit Storyline; 7.2.12 Understanding Hydrocarbons Part II (Phenomenon Context). Topics selected for in-depth study are developed through their role in explaining selected phenomena, chosen to support students in building the knowledge and abilities needed to achieve proficiency in a bundle of PE’s. The storylines and investigative questions of this program are excellent, engaging, real-world and age appropriate.
* Criterion #2.9: Grade 6, Overview - Technology and Teaching. Resources encourage the meaningful use of technologies such as video clips or computer simulations to investigate phenomena that cannot be directly experienced in the classroom; effective measuring tools (computer linked thermometer or range-finder, digital scales, etc.); and spreadsheets and other software to record, display, and analyze data, etc. In these contexts, 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.
* Criterion #2.12: Grade 6, 3.6 Sea Breeze Part I (Background for Teachers Context). Grade 7, 5.8 It Keeps Rising. Grade 8, Unit 4 Overview - Science Background. Ancillary and support resources are an integral part of the instructional program and are clearly aligned with the CA NGSS.

**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 #3.1: Grade 6, Unit 2 Overview – Assessment. Assessments in the instructional resources reflect the three-dimensional nature of the CA NGSS and the CA Science Framework. Assessment tools measure what students know and are able to do, as defined by the PEs in the CA NGSS. Assessments stress performance tasks rather than rote memorization.
* Criterion #3.3: Grade 7, Lesson 1.9 to 1.10 Looking for Evidence. Teacher materials provide support to engage students in tasks that afford both learning and formative assessment opportunities at the same time and provide guidance to teachers on how to embed formative assessment activities in the broader learning activity.
* Criterion #3.5: Grade 8, Lesson 4.6 Inheriting Traits. Assessments yield information teachers can use in planning and modifying instruction to help all students meet or exceed the standards.
* Criterion #3.8: Grade 8, Lesson 4.9 to 4.10 Natural Selection. Students’ progress toward meeting the three-dimensions of the CA NGSS is assessed through both writing and performance tasks. Student written responses are consistent with the grade-level writing and mathematics requirements in the CA CCSS for ELA/ Literacy and the CA CCSSM.

## Criteria Category 4: Access and Equity

Program materials ensure universal and equitable access to high-quality curriculum and instruction for all students and provide teachers with suggestions for differentiation for students with special needs.

**Citations:**

* Criterion #4.1: Grade 8, Unit 3 Overview. The instructional resources reflect the goals of access and equity outlined in chapter 10 of the CA Science Framework.
* Criterion #4.1: Grade 7, Unit 5 Overview. The instructional resources reflect the goals of access and equity outlined in chapter 10 of the CA Science Framework.
* Criterion #4.2: Grade 6, Lesson 5.3. At every grade level, suggested lessons and teacher resources include research-based strategies to address the needs of English learners consistent with the CA ELD Standards.
* Criterion #4.4: Grade 7, Unit 1 Overview. Teacher resources supply a differentiated path for all students. In particular, instructional resources provide guidance to support students with special needs, including standard English learners, English learners, long term English learners, students living in poverty, foster youth, girls and young women, advanced learners, students with disabilities and students below grade level in science skills, three-dimensional learning, literacy skills, or mathematics skills.

## 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 #5.3: Grade 6, Unit 3.6 Sea Breeze Part 1. The teacher resources provide guidance in daily lessons and units of instruction with appropriate opportunities for checking for understanding and adjusting lessons, if necessary, to ensure three-dimensional learning.
* Criterion #5.6: Grade 6, Unit 1, Lesson 1.2, Energy and Climate Challenge; Lesson 1.2b Pre-assessment, key and teacher tips. All suggested student tasks, including classroom activities, end-of-chapter tasks, suggested out-of-school activities, and assessment tasks are supported with guidance for the teacher on how to implement and, where appropriate, grade the task. Assessment keys and rubrics are provided.
* Criterion #5.19: Grade 6, Unit 4 Resources Grade 8, Resources provide teachers with instructions on how outside resources can be incorporated into a three-dimensional learning, standards-based science program.
* Criterion #5.19: Grade 6, Lesson 5.3 Researching Trash, Extensions (bottom of page). Resources provide teachers with instructions on how outside resources can be incorporated into a three-dimensional learning, standards-based science program.
* Criterion #5.19: Grade 8, Lesson 5.15 Maglev Trains: Magnetic Fields, Extensions. Resources provide teachers with instructions on how outside resources can be incorporated into a three-dimensional learning, standards-based science program.

## Edits and Corrections:

The following edits and corrections must be made as a condition of adoption:

| **#** | **Grade Level** | **Component** | **Page Number(s)** | **Current Text** | **Proposed Corrected Text** | **Reason for Edit** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | 6 | Unit 2, lesson 2.21 | Home Design Prototype Part II. | They should focus on maximizing energy transfer from the Sun to the materials in the house during the winter and minimizing this energy transfer during the summer. | Students should also include heat transfer by convention and conduction in addition to radiation and re-radiation. | Omissions of science vocabulary |
| 2 | 6 | Unit 2, Lesson 2.21 | Passive Solar Home Report Handout | 3. Research Explanation – Energy Transfer: Develop a claim–evidence statement that describes how the air inside the home gets warmed using your passive solar home design. Include a drawing that explains how energy is transferred within your solar home design. | Add sentence in Item 3 to say: Make sure your drawing explains all possible methods of heat transfer. | The passive solar home will be affected by all methods of heat transfer, not just radiation and re-radiation. |
| 3 | 6 | MS-ESS3-5 | 1.12a graph, World Population over the last 12,000 years | The red line on graph | The blue line on the graph | Typo of the color of the line |
| 4 | 6 | MS-ESS3-5 | 1.12b powerpoint | For additional background information on the prompts, please refer to the Natural vs. Anthropogenic Factors presentation Lesson 1.12b-natural-and-anthropogenic-factors.pptx | For additional background information on the prompts, add in the comments of the presentation | For clarity on finding the additional background information |
| 5 | 8 | Lesson 6.11 | n/a | Phet simulation of season. Clearly depicts the cyclical pattern of the Earth/Sun movement resulting in seasons. | Clearly depicts the cyclical pattern of the Earth/Sun movement resulting in seasons and eclipses (solar and lunar). | To complete the student understanding of the DCI ESS1.B Earth and the Solar System. |
| 6 | 6 | Lesson 6.2 to 6.3, 6.12 | Exploring Sensory Lesson, Modeling Sensory Response Teacher Resources | This sequence of lessons on sensory response now concludes with a reflection of how this understanding can help students create more meaningful stories as part of the unit challenge. | If possible, please add a rubric the teacher for MS-LS 1-8 | Since there is a gap in the unit to work on necessary science skills, an answer rubric would be helpful for the teacher to make sure the students do not miss any important details that apply to this PE |
| 7 | 6 | Lesson 1.2 | Teacher Resources | File is only a PDF | File as editable document | If the document is editable, it makes it easy for the teacher to make accommodations for their students |
| 8 | 6 | Standards List | Grade 6 Overview, Standards, LS1.1 | [Clarification Statement: Emphasis is on developing evidence that living things are made of cells, distinguishing between living and non-living things, and understanding that living things may be made of one cell or many and varied cells.] | [Clarification Statement: Emphasis is on developing evidence that living things (including Bacteria, Archaea, and Eukarya) are made of cells, distinguishing between living and non-living [Clarification Statement: Emphasis is on developing evidence that living things **(including Bacteria, Archaea, and Eukarya)** are made of cells, distinguishing between living and non-living. | Correct an omission in language: content that supports this standard is already in place.Also recommended to add this standard reference to places in curriculum that reflect student learning about bacteria and viruses. |
| 9 | 8 | Lesson 6.9 | Gravitational Simulation Activity | Compare the forces of gravity on the Sun and Earth - which has greater gravitational force? Why? | Compare the forces of gravity on the Sun, Moon, and Earth. Which has a greater gravitational force and how are the patterns of eclipses affected by these forces? | To complete the student understanding of PE MS-ESS1-1. |
| 10 | 8 | Lesson 6.11 | worksheet 6.11a | The Model… Includes the Sun and the Earth-Earth must have a North Pole, South Pole, and Equator. | The Model…Incudes the Sun, Moon, and the Earth-Earth must have a North Pole, South Pole, and Equator. | To complete the student understanding of PE MS-ESS1-1. |
| 11 | 8 | Lesson 1.2 | The Blue Marble Activity | Explain that students should use other planets, the moon, and the Sun to provide points of reference for the representation | Explain that students should use other planets, the moon, their understanding of the phases of the moon, and the Sun to provide points of reference for the representation. | To complete the student understanding of PE MS-ESS1-1. |
| 12 | 6 | Lesson 6.12 | Modeling Sensory Response L.P. Activity 1 | The models that students develop are a summative assessment to measure student understanding of sensory response. | The models that students develop are a summative assessment to measure student understanding of sensory response that emphasizes both physical and emotional responses to stimuli. | To complete the student understanding of PE MS-LS1-8. |
| 13 | 8 | Lesson 1.2 | Teacher Tips | (none) | Add Make certain students include the moon orbiting the Earth in Pre-Assessment Q1. | Reason for edit: It is important for teachers to understand students know the moon’s orbit is part of the solar system, as it is used later in Unit 6. |
| 14 | 8 | Lesson 6.11 | Tying It All Together. | (none) | Add sentence at end of paragraph. The 5◦ angle of the moon’s orbital plane explains why solar eclipses don’t occur monthly. | The monthly orbit of the moon around the sun could lead students to conclude that we should experience a solar eclipse monthly, during every new moon. |
| 15 | 8 | Lesson 6.9 | Lesson Plan | Ends with Mars has a much smaller mass than Earth. If Mars were the same distance from the Sun as the Earth is, how would the gravitational force between Mars and the Sun compare to the gravitational force between Earth and the Sun? | Add after the previous question: Why isn’t there a solar eclipse every month as the moon passes between the Earth and the Sun? | A full model of the relationship among Earth, Sun, and Moon must explain the pattern of orbital interactions that cause eclipses to occur. |
| 16 | 8 | Lesson 6.11 | Teacher Tips | The model activity is designed to get students to understand that Earth’s tilt during its revolution around the Sun is the reason for the seasons. | Add (at the end of the paragraph) The model activity is also designed to get students to understand that the moon’s orbital plane is not aligned to Earth’s orbit around the sun. | A full model of the Earth’s annual path around the Sun needs to include an understanding of the moon’s orbital behavior, too. |

## Social Content Citations:

The panel identified the following social content violations:

| **#** | **SC Code** | **Grade Level** | **Component** | **Page Number(s)** | **Current Text** | **Proposed Corrected Text** | **Reason for Citation** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | A3 | 7 | N/A | N/A | Inequitable proportions of representations of majority to minority individual accomplishments | Include more examples of working female scientists. | Equitable representation proportions are desired |
| 2 | A3 | 7 | N/A | N/A | Inequitable proportions of representations of majority to minority individual accomplishments | Include more examples of working minority group scientists. | Equitable representation proportions are desired |
| 3 | A3 | 7 | N/A | N/A | Inequitable proportions of representations of majority to minority individual accomplishments | Include more examples of working LGBT scientists | Equitable representation proportions are desired |
| 4 | J | 6 | Lesson 3.4, Chasing the Storm | N/A | Data on storm flooding. | Include discussion of locally relevant wildfire information. | In California, wildfires can affect storm flooding. |
| 5 | L | 8 | Lesson 5.10, Engineering drag-racers | N/A | 5.10c-drag-racer-forces-phenomenon.pdf | Mask/use generic terms instead of brand names. | Logos in image. |

California Department of Education, August 2018