Exploring New Jersey Student Learning Standards: The New Vision for K-12 Science Education

Division of Academics and Performance

Michael Heinz, Science Coordinator
Michael.Heinz@doe.nj.gov
Goals

• Explore the mission and vision for science education defined in the 2020 New Jersey Student Learning Standards for Science.

• Develop a high-level understanding of the shifts that one should see in curriculum and in classrooms.

• Explore the resources that are available to support your work.
Standards for a Rapidly, Changing World

Goal: Prepare New Jersey students to live healthy, productive lives equipped with the knowledge and skills to make their local and global communities a better place to live.
Diverse Educator Teams Assisted in the Review/Revisions

Over 100 districts, non-profit organizations, agencies, and military represented

Teachers, school leaders, higher ed, including charter & non-public from urban, suburban & rural communities

88% participants have Masters degree or higher
Climate Change Education

New Jersey Becomes First U.S. State to Require Schools to Teach Climate Change

Credit: The Planetary Press
2020 NJSLS Revisions

• Career Readiness, Life Literacies, and Key Skills;

• Comprehensive Health and Physical Education;

• Computer Science & Design Thinking;

• Science;

• Social Studies;

• Visual and Performing Arts; and

• World Languages

English Language Arts and Mathematics were adopted by the New Jersey State Board of Education in May 2016 and were not under review.
Framework for 2020 NJSLS

Disciplinary Concepts
- Incorporate key concepts, principles, theories, and processes of a discipline

Core Ideas
- Prioritize the important ideas and core processes that are central to a discipline and have lasting value beyond the classroom

Performance Expectations
- Describe the knowledge and skills that are most important for students to know in order to be able to do

Practices
- Reflect the habits of mind that lead to post-secondary success
(c) District boards of education shall be responsible for the review and continuous improvement of curriculum and instruction based upon changes in knowledge, technology, assessment results, and modifications to the NJSLS, according to N.J.A.C. 6A:8-2.

1. District boards of education shall include interdisciplinary connections throughout the K-12 curriculum.

2. District boards of education shall integrate into the curriculum 21st century themes and skills.

3. District boards of education shall provide the time and resources to develop, review, and enhance inter-disciplinary connections, supportive curricula, and instructional tools for helping students acquire required knowledge and skills. The tools include, but are not limited to:
   
   i. A pacing guide;
   
   ii. A list of core instructional materials, including various levels of texts at each grade level;
   
   iii. Benchmark assessments; and
   
   iv. Modifications for special education students, for ELLs in accordance with N.J.A.C. 6A:15, for students at risk of school failure, and for gifted students.
Definitions (NJAC 6A:8-1.3)

Twenty-first century themes and skills integrated into all content standards areas (NJAC 6A:8-1.1)

- Twenty-first century themes and skills means:
  - **themes** such as global awareness; financial, economic, business, and entrepreneurial literacy; civic literacy; health literacy;
  - **learning and innovation skills,**
    - including creativity and innovation, critical thinking and problem solving, and communication and collaboration;
  - **information, media, and technology skills;** and
  - **life and career skills,**
    - including flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility (NJAC 6A:8-1.3 Definitions)\(^1\)

\(^1\) Font modified for illustrative purposes
Introduction to the 2020 NJSLS-Science

Scientific and technological advances have proliferated and now permeate most aspects of life in the 21st century. It is increasingly important that all members of our society develop an understanding of scientific and engineering concepts and processes. Learning how to construct scientific explanations and how to design evidence-based solutions provides students with tools to think critically about personal and societal issues and needs. Students can then contribute meaningfully to decision-making processes, such as discussions about climate change, new approaches to health care, and innovative solutions to local and global problems.

Mission

All students will possess an understanding of scientific concepts and processes required for personal decision-making, participation in civic life, and preparation for careers in STEM fields (for those that chose).
Vision

Prepare students to become scientifically literate individuals who can effectively:

• Apply scientific thinking, skills, and understanding to real-world phenomena and problems;

• Engage in systems thinking and modeling to explain phenomena and to give a context for the ideas to be learned;

• Conduct investigations, solve problems, and engage in discussions;

• Discuss open-ended questions that focus on the strength of the evidence used to generate claims;

• Read and evaluate multiple sources, including science-related magazine and journal articles and web-based resources to gain knowledge about current and past science problems and solutions and develop well-reasoned claims; and

• Communicate ideas through journal articles, reports, posters, and media presentations that explain and argue.
Spirit and Intent of the NJSLS-S

• Describe what students are expected to know and be able to do.
• Promote science instruction where students use the Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts to figure out how or why something happens or to solve a human problem.
• Promote the use of learning experiences in which students investigate phenomena, design solutions to problems, make sense of evidence to construct arguments, and critique and discuss those arguments.
• Provide a structure for creating a science curriculum that is coherent vertically and horizontally.
An Example

• What looks different from the science classes that you took in K-12?

A Project-Based Approach to Teaching Elementary Science

open3d.science/
Performance Expectations

*Students who demonstrate understanding can:*

5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

• What criteria would you use if you were to create a rubric for this PE?

<table>
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<tr>
<th>Criteria</th>
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Dissecting a Performance Expectation

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

[Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.] [Assessment Boundary: Assessment is limited to the interactions of two systems at a time.]
Dissecting a Performance Expectation

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Examples could include:

• the influence of the ocean on ecosystems, landform shape, and climate;

• the influence of the atmosphere on landforms and ecosystems through weather and climate; and

• the influence of mountain ranges on winds and clouds in the atmosphere.

The geosphere, hydrosphere, atmosphere, and biosphere are each a system. Items on the NJSLA are limited to the interactions of two systems at a time.
# 3-Dimensional Performances

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

<table>
<thead>
<tr>
<th>Science and Engineering Practices</th>
<th>Disciplinary Core Ideas</th>
<th>Crosscutting Concepts</th>
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<tbody>
<tr>
<td>▪ Develop a model using an example to describe a scientific principle.</td>
<td>▪ Earth’s major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth’s surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.</td>
<td>▪ A system can be described in terms of its components and their interactions.</td>
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What does 3-Dimensional Mean?
**Color Coding 3-D Performances**

**Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.**

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See page 13 of Earth and Space Sciences: A Compilation of the Framework and the NJSLS-S
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**Articulation of DCIs across grade levels:**

- 2.ESS2.A (5-ESS2-1)
- 3.ESS2.D (5-ESS2-1)
- 4.ESS2.A (5-ESS2-1)
- MS.ESS2.A (5-ESS2-1)
- MS.ESS2.C (5-ESS2-1)
- MS.ESS2.D (5-ESS2-1)
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**Connections to NJSLS – English Language Arts**

**RI.5.7** Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS2-1)

**SL.5.5** Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-ESS2-1)
### Science and Engineering Practices

<table>
<thead>
<tr>
<th>Developing and Using Models</th>
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<tbody>
<tr>
<td>▪ Develop a model using an example to describe a scientific principle.</td>
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<table>
<thead>
<tr>
<th>Disciplinary Core Ideas</th>
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<tbody>
<tr>
<td>ESS2.A: Earth Materials and Systems</td>
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<td>▪ Earth’s major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth’s surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.</td>
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<thead>
<tr>
<th>Crosscutting Concepts</th>
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<tbody>
<tr>
<td>Systems and System Models</td>
</tr>
<tr>
<td>▪ A system can be described in terms of its components and their interactions.</td>
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</tbody>
</table>

### Connections to NJSLS – Mathematics

**MP.2**  Reason abstractly and quantitatively. (5-ESS2-1)

**MP.4**  Model with mathematics. (5-ESS2-1)

**5.G.A.2**  Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS2-1)
### 5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

#### Observable features of the student performance by the end of the grade:

<table>
<thead>
<tr>
<th></th>
<th>Components of the model</th>
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<tbody>
<tr>
<td>1</td>
<td>Students develop a model, using a specific given example of a phenomenon, to describe ways that the geosphere, biosphere, hydrosphere, and/or atmosphere interact. In their model, students identify the relevant components of their example, including features of two of the following systems that are relevant for the given example:</td>
</tr>
<tr>
<td></td>
<td>Geosphere (i.e., solid and molten rock, soil, sediment, continents, mountains).</td>
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<td></td>
<td>Hydrosphere (i.e., water and ice in the form of rivers, lakes, glaciers).</td>
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<td>Atmosphere (i.e., wind, oxygen).</td>
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<td></td>
<td>Biosphere (i.e., plants, animals [including humans]).</td>
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<tr>
<th>2</th>
<th>Relationships</th>
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<td></td>
<td>Students identify and describe relationships (interactions) within and between the parts of the Earth systems identified in the model that are relevant to the example (e.g., the atmosphere and the hydrosphere interact by exchanging water through evaporation and precipitation; the hydrosphere and atmosphere interact through air temperature changes, which lead to the formation or melting of ice).</td>
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<th>Connections</th>
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<td>Students use the model to describe a variety of ways in which the parts of two major Earth systems in the specific given example interact to affect the Earth’s surface materials and processes in that context. Students use the model to describe* how parts of an individual Earth system:</td>
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<td>Work together to affect the functioning of that Earth system.</td>
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<tr>
<td></td>
<td>Contribute to the functioning of that Earth system.</td>
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</table>
What does a student need to understand and be able to do?

- The Performance Expectation
- Clarification Statement
- Assessment Boundaries
- Foundation Boxes
  - Element of the SEP
  - Element of the DCI
  - Element of the CCC
- Connections to other DCIs in the same grade
- Articulation of DCIs across Grade Levels
- Evidence Statements
Treasure Chest

tinyurl.com/DOESCIRESOURCES

• Use the next 10 minutes to explore the resources on this webpage.
• In the chat, name a resource and briefly describe how it could be used to improve student learning.
**Student Performance**

Based on all of the evidence provided, how would you revise the rubric’s criteria?

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Key Understandings I

• The NJSLS in 9 content areas have been revised.

• The NJSLS-S describe performances in which students need to demonstrate their abilities to use SEPs, DCIs, and CCC to explain how and why something occurs or to solve a human problem.

• The SEPs, DCIs, and CCC are equally important.

• There is a lot of information embedded in the NJSLS-S that provide evidence for what students should understand and be able to do.

• The NJSLS-S, NJSLS-Mathematics, and NJSLS-English Language Arts are aligned with each other.

• The NJDOE has provided a lot of resources to increase understandings about what the performance expectations mean.
Let’s Take 10

2020 NJSLS-Science

nj.gov/education/cccs/2020/NJSLSScience.pdf
How significant are the edits to the New Jersey Student Learning Standards for Science and what are the implications for curriculum revisions?
# Grades K through 5 Climate Change Edits

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<tbody>
<tr>
<td><strong>K-ESS3-3</strong>: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</td>
<td><strong>K-ESS3-3</strong>: Communicate solutions that will reduce the impact of <strong>climate change and</strong> humans on the land, water, air, and/or other living things in the local environment.</td>
</tr>
<tr>
<td><strong>K-2-ETS1-1</strong>: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</td>
<td><strong>K-2-ETS1-1</strong>: Ask questions, make observations, and gather information about a situation people want to change (e.g., <strong>climate change</strong>) to define a simple problem that can be solved through the development of a new or improved object or tool.</td>
</tr>
<tr>
<td><strong>3-ESS3-1</strong>: Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</td>
<td><strong>3-ESS3-1</strong>: Make a claim about the merit of a design solution that reduces the impacts of <strong>climate change and/or</strong> a weather-related hazard.</td>
</tr>
<tr>
<td><strong>4-ESS3-2</strong>: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.</td>
<td><strong>4-ESS3-2</strong>: Generate and compare multiple solutions to reduce the impacts of natural Earth processes <strong>and climate change</strong> have on humans.</td>
</tr>
<tr>
<td><strong>5-ESS3-1</strong>: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.</td>
<td><strong>5-ESS3-1</strong>: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources, environment, <strong>caused the rise in global temperatures</strong> and <strong>address climate change issues</strong>.</td>
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</table>
## Grades 6 through 8 Climate Change Edits

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<tr>
<td><strong>MS-ESS3-5:</strong> Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.</td>
<td><strong>MS-ESS3-5:</strong> Ask questions to clarify evidence of the factors that have caused rise in global temperatures <strong>climate change</strong> over the past century.</td>
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<tr>
<td><strong>HS-ESS3-1</strong>: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.</td>
<td><strong>HS-ESS3-1</strong>: Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and [changes in] <em>climate change</em> have influenced human activity.</td>
</tr>
<tr>
<td><strong>HS-ESS3-4</strong>: Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.</td>
<td><strong>HS-ESS3-4</strong>: Evaluate or refine a technological solution that reduces impacts of human activities on <em>climate change and</em> other natural systems.</td>
</tr>
<tr>
<td><strong>HS-ESS3-6</strong>: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.</td>
<td><strong>HS-ESS3-6</strong>: Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity (<em>i.e.</em>, <em>climate change</em>).</td>
</tr>
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</table>
Key Understandings II

- 9 of the 208 Science Performance Expectations were edited.
- 1 element of a Disciplinary Core Ide was edited.

- Most consequential edits occurred in grades K-5

- Reminder - interdisciplinary connections as well as 21st century themes and skills are required in curriculum
  - Not every lesson
  - Not every day
  - Don’t force it
  - QSAC reviewers are allergic to alphabet soup
We need people who can figure out how and why the Earth’s climate is changing and what can be done to reduce its consequences.

We need people who can gather and communicate evidence-based information about climate change, how we can mitigate it, or adapt to its consequences?

We need people who can aggregate, model, interpret, and use big data.

We need civic engagement to combat environmental and climate injustices.

We need people who can express the human experience through the arts.

We need people who can use the science to design and build solutions that allow us to mitigate or adapt to the impacts of climate change.

We need people who communicate with people from around the globe so that we can collaborate to find solutions.

We need people who can ensure that this and future generations are healthy.
Climate Change Grouping

How can we work together to reduce the impact of climate change on health problems?

- **Science**: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources, environment, and address climate change issues.

- **CHPE**: Describe how business, non-profit organizations, and individuals can work cooperatively to address health problems that are affected by global issues, including climate change.

- **ELA**: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work and provide a list of sources.

- **SS**: Develop an action plan that addresses issues related to climate change and share with school and/or community members.

- **CS&DT**: Organize and present climate change data visually to highlight relationships or support a claim.

- **CLKS**: Propose ways local and global communities can engage digitally to participate in and promote climate action.
Climate Change Grouping II

How can we work together to reduce the impact of climate change on health problems?

- **Science**: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources, environment, and address climate change issues.
- **CHPE**: Describe how business, non-profit organizations, and individuals can work cooperatively to address health problems that are affected by global issues, including climate change.
- **ELA**: Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work and provide a list of sources.
- **SS**: Develop an action plan that addresses issues related to climate change and share with school and/or community members.
- **CS&DT**: Organize and present climate change data visually to highlight relationships or support a claim.
- **CLKS**: Propose ways local and global communities can engage digitally to participate in and promote climate action.
Scientific literacy involves understanding global climate change & what people can do about it

• Based on the previous diagram and STEM Teaching Tool #12, how are you beginning to envision how climate change will be a part of future curriculum?

• Record your answers on the Jam Board.

• As a group, talk about your answers and notice any trends in what members are saying.

• 15 minutes

STEMteachingtools.org/brief/12
Emerging Framework for Climate Change Education

Evidence-Based, Inclusive, and Action Oriented

The Youth Land Trust
2020 New Jersey Scientific Report on Climate Change

• New Jersey Department of Environmental Protection’s report on climate change summarizes the current state of knowledge regarding the effects of climate change on New Jersey’s environment.

• See Executive Summary p. vi – xv and list, in the chat, **identify the impacts that climate change** in NJ.
Climate Change 101
An introduction to climate change in New Jersey
NJ Adapt is a suite of online tools designed to provide data to planners, decision-makers, practitioners, and others addressing climate change in New Jersey. Presently, NJ Adapt contains three tools – NJ FloodMapper, Municipal Snapshot, and NJ Forest Adapt.
Climate Education Resources
Support for Climate Change Education

Position Statement: The Teaching of Climate Science

Youth, Social Media and Digital Civic Engagement

- Companion Ela Standards Grades 6 - 8 (Word | PDF)
- Companion Ela Standards Grades 9 - 10 (Word | PDF)
- Companion Ela Standards Grades 11 - 12 (Word | PDF)

APPENDIX L – Connections to Mathematics
Let’s Take 10

Professional Learning Resources

www.nj.gov/dep/climatechange/
How has Science Education Evolved?

• In what ways is your science curriculum in line with this vision?
• Record your answers on the Jam Board.
• As a group, talk about your answers and notice any trends in what member are saying.
• 15 minutes

STEMteachingtools.org/brief/14
Learners Make Sense of Phenomena Through Science & Engineering Practices

- Asking Questions & Defining Problems
- Developing & Using Models
- Planning & Carrying Out Investigations
- Analyzing & Interpreting Data
- Constructing Explanations & Designing Solutions
- Using Mathematical & Computational Thinking
- Engaging In Argument From Evidence
- Obtaining, Evaluating, & Communicating Information

What are we trying to figure out? How will we figure this out? How can we keep track of ideas? How does it all fit together?

Diagram from page 14 in this chapter of this book:
Gather

- Obtain Information
- Ask Questions/Define Problems
- Plan & Carry Out Investigations
- Use Mathematics & Computational Thinking
- Use Models to Organize Data and/or Information

Reason

- Evaluate Information
- Analyze Data
- Use Mathematics and Computational Thinking
- Construct Explanations/Solve Problems
- Develop Arguments for why or how Evidence Supports Explanations or Claims
- Use Models to Predict & Develop Evidence

Communicate Reasoning

- Communicate Information
- Communicate Arguments (written/oral) for how the Evidence Supports an Explanation
- Use Models to Communicate Reasoning
Figuring it Out Rather Than Learning About

• What does it mean when someone says that kids should be *figuring it out* rather than learning about?

• Refer to STEM Teaching Tool #21 to support your claim.

• Record your answers on the [Jam Board](https://stemteachingtools.org/brief/21).

• As a group, talk about your answers and notice any trends in what members are saying.

• 15 minutes
What does a lesson plan look like?

How can you support student-driven learning goals and investigation while learning about classroom learning objectives?

STEMteachingtools.org/brief/46
Equity and Accessibility

As summarized by Banks et al.: “Being born into a racial majority group with high levels of economic and social resources—or into a group that has historically been marginalized with low levels of economic and social resources—results in very different lived experiences that include unequal learning opportunities, challenges, and potential risks for learning and development.”

— Banks, et al., 2007, p. 15 (videos)
— NRC Framework, p. 279
Equity and Accessibility

tinyurl.com/NJACESSE

nj.gov/education/equity/resources/

<table>
<thead>
<tr>
<th>Articles and Publications</th>
<th>Books +</th>
<th>Guidances and Toolkits +</th>
<th>Resource Banks +</th>
</tr>
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<td>Anti-Racist Pedagogy Guide: Methods and challenges – A guide that provides resources for developing anti-racist pedagogical strategies and syllabi</td>
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<tr>
<td>ASCD - How to Be an Anti-Racist Educator - ASCD Education Update</td>
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<td>Critical Conscious Kid - Critical conversations with authors, academics and activists around equity, education and literature (links to author interviews)</td>
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<td>IllinoisCivics.org - Civics course implementation blog (a report, podcast, published materials, and other resources)</td>
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<td>National Science Teacher Association (NSTA) - Social Justice in the Science Classroom - Editor’s Corner</td>
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<td>Refinery29 - Your Black Colleagues May Look Like They’re Okay — Chances Are They’re Not</td>
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All Standards, All Students – Case Studies

NGSS Appendix D

- Case Study 1: Economically Disadvantaged
- Case Study 2: Race and Ethnicity
- Case Study 3: Students with Disabilities
- Case Study 4: English Language Learners
- Case Study 5: Girls
- Case Study 6: Alternative Education
- Case Study 7: Gifted and Talented Students

nap.edu/read/13165/chapter/16
Practice Brief 15
Overview: How can we promote equity in science education?

Practice Brief 27 - PDF En Español
Engaging English Learners in the Science and Engineering Practices

Practice Brief 40 - PDF En Español
How can Making promote equity and excitement in STEM?

Practice Brief 54
How to build an equitable learning community in your science classroom

Practice Brief 59
Creating science learning experiences that support learners receiving special education services
Science Program Rubric

To what extent is the science program consistent with the letter, spirit, and intent of the New Jersey Student Learning Standards for Science? and

What should our goal(s) be for continued improvement?

A. All Standards, All Students: The science program ensures that ALL students are provided appropriate learning opportunities for ALL of the standards. This includes but is not limited to, students with disabilities, economically disadvantaged, English Language Learners, and students who have been identified as gifted.

B. Explaining Phenomena or Designing Solutions: The units focus on supporting students to make sense of engaging and authentic phenomena or design solutions to real-world problems.

C. Three Dimensional: The units help students develop and use multiple grade-appropriate elements of the science and engineering practices (SEP), disciplinary core ideas (DCI), and crosscutting concepts (CCC), which are deliberately selected to aid student sense-making of phenomena or designing of solutions.

D. Integrating the Three Dimensions for Instruction and Assessment: The units require student performances that integrate elements of the SEPs, CCCs, and DCIs to make sense of phenomena or design solutions to problems, and the learning tasks elicit student artifacts that show direct, observable evidence of three-dimensional learning.

E. Relevance and Authenticity: The units motivate student sense-making or problem-solving by taking advantage of student questions and prior experiences in the context of the students’ home, neighborhood, and community as appropriate.

F. Student Ideas: The units provide opportunities for students to express, clarify, justify, interpret, and represent their ideas (i.e., making thinking visible) and to respond to peer and teacher feedback.

G. Building on Students’ Prior Knowledge: The units identify and build on students’ prior learning in all three dimensions in a way that is explicit to both the teacher and the students.
One Solution

High-quality, freely available science instructional materials aligned to the NJSLS-S.

• Grades 6-8 is available
• Biology, Chemistry, and Physics will be field tested during the 2021-2022 and 2022-2023 academic years.

Getting to Know OpenSciEd – September 25, 2019

NJDOE Webinar:
• Leveraging High Quality Resources, May 11, 2021 from 3:00 pm to 4:00 pm.
• Registration will be available at
Other Open Education Resources

• OpenSciEd,

• InquiryHub,

• Next Generation Storylines,

• Create for STEM,

• Phenomenal Gathering, Reasoning, and Communicating (GRC) Lessons, and

• Stanford NGSS Curriculum and Assessment
Quality of Instructional Materials Matters

Third Party Reviews

• edreports.org Reports Center-Science
  • 3 Ways to Know if You’re Using Quality Science Materials
  • Selecting for Quality: 6 Key Adoption Steps
• NextGenScience Peer Review Pane

Tools for Criterion Referenced Reviews

• NGSS Lesson Screener
• EQuIP Rubric for Science
• NextGen TIME
Thank You!

The New Jersey Department of Education Website
www.nj.gov/education/

Michael Heinz, Science Coordinator
Michael.Heinz@doe.nj.gov

The New Jersey Department of Education Science Website
www.state.nj.us/education/aps/cccs/science/

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