

Grade 5

Unit 6: Earth Systems

New Jersey Student Learning Standards
2022 - 2023

Established 2016-2017
Revised 2018-2019
Revised 2019-2020
Revised 2020-2021
Revised 2022-2023

Marking Period	Unit Title	Recommended Instructional Days
3	Earth Systems	21 Days
NJSLS - Science: Title	NJSLS - Science: Performance Expectations	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSL-S within Unit
5-ESS2 Earth's Systems	5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. 5-ESS2-2. Describe and graph the amounts of saltwater and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	
FOUNDATION Disciplinary: Core Idea	FOUNDATION Disciplinary: Statement	
ESS2.A: Earth Materials and Systems ESS2.C: The Roles of Water in Earth's Surface Processes	<ul style="list-style-type: none"> 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 	<p>Essential Questions:</p> <ul style="list-style-type: none"> What Are Earth's Major Systems? How Do Earth's Systems Interact? What Is The Role of the Oceans in Earth's Systems? <p>Enduring Understanding:</p> <ul style="list-style-type: none"> Explore the hydrosphere, geosphere, biosphere and atmosphere. Learn how Earth's systems interact. Identify and describe each of Earth's systems and the cycles that occur within them. Understand how the ocean affects Earth's system <p>Lab Activities- Using a microscope, inspect Earth's rocks up close. What sediments might be in this rock? What interactions occurred before it became this rock? How might weathering have affected this rock's formation? (SCI,ELA)</p>

	<p>landforms to determine patterns of weather. (5-ESS2-1)</p> <ul style="list-style-type: none"> Nearly all of Earth’s available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5- ESS2-2) 	<p>Performance Task - Develop a model that explains how the hydrosphere and atmosphere interact. What does this interaction lead to next? Be sure that your model represents the interaction fully. (SCI, ART, ELA)</p> <p>Research Task - Research how theories about the hydrosphere, geosphere, biosphere and atmosphere have evolved over time. What scientists first discovered them? (SCI, TECH, ELA)</p> <p>Career Education <u>Volcanologist</u> - Students learn about the work of volcanologists, or scientists who study volcanoes. Often this work is done in the field. Students explain how the work of these scientists adds to our understanding of the geosphere. (pg 383 - 384)</p> <p><u>Agricultural Engineering</u> - Students examine all of the ways agricultural engineers help to make farming sustainable, safe, and environmentally friendly. (Online Textbook)</p>
<p>FOUNDATION Science and Engineering Practices: <i>Core Idea</i></p>	<p>FOUNDATION Science and Engineering Practices: <i>Statement</i></p>	<p><u>People in Science & Engineering: Dr. Warren Washington & Dr. David Sandwell</u>- Students learn about the work of Dr. Warren Washington & Dr. David Sandwell. The scientists both use technology to study the ocean and the ocean’s interactions with Earth’s other systems. Dr. Washington uses modeling to analyze climate change, weather, and the impact of oceans on climate. Climate models use computer technology to simulate different conditions and to predict the impact of changes in one component in a system on other parts of the system. Dr. Sandwell employs technology, such a satellites, to study the interactions of the hydrosphere and the geosphere. (page 433 - 432) (Amistad Law / Diversity & Inclusion)</p>
<p>Developing and Using Models</p> <p>Using Mathematics and Computational Thinking</p>	<ul style="list-style-type: none"> Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. <ul style="list-style-type: none"> Develop a model using an example to describe a scientific principle. (5-ESS2-1) Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions. 	<p>Interdisciplinary Connections: Content: ;NJSL#: ELA/ Literacy 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),(5-ESS2-2) W.5.8 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. (5-ESS2-2)</p>

	<ul style="list-style-type: none"> ○ Describe and graph quantities such as area and volume to address scientific questions. (5-ESS2-2) 	<p>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),(5-ESS2-2)</p> <p>Mathematics</p> <p>MP.2 Reason abstractly and quantitatively. (5-ESS2-1),(5-ESS2-2)</p> <p>MP.4 Model with mathematics. (5-ESS2-1),(5-ESS2-2)</p> <p>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)</p>
<p align="center">FOUNDATION Crosscutting Concepts: <i>Core Idea</i></p>	<p align="center">FOUNDATION Crosscutting Concepts: <i>Statement</i></p>	
<p>Scale, Proportion, and Quantity</p> <p>Systems and System Models</p>	<ul style="list-style-type: none"> ● Standard units are used to measure and describe physical quantities such as weight and volume. (5-ESS2-2) Systems and System ● A system can be described in terms of its components and their interactions. (5-ESS2-1) 	
<p align="center">Social and Emotional Learning: <i>Competencies</i></p>	<p align="center">Social and Emotional Learning: <i>Sub-Competencies</i></p>	
<p>Self-Awareness</p> <p>Self-Management</p> <p>Social Awareness</p> <p>Responsible Decision-Making</p> <p>Relationship Skills</p>	<ul style="list-style-type: none"> ● Recognize one’s feelings and thoughts ● Recognize the impact of one’s feelings and thoughts on one’s own behavior ● Recognize one’s personal traits, strengths, and limitations ● Recognize the importance of self-confidence in handling daily tasks and challenges ● Understand and practice strategies for managing 	

	<p>one's own emotions, thoughts, and behaviors</p> <ul style="list-style-type: none">● Recognize the skills needed to establish and achieve personal and educational goals● Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals.● Recognize and identify the thoughts, feelings, and perspectives of others● Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds● Demonstrate an understanding of the need for mutual respect when viewpoints differ● Demonstrate an awareness of the expectations for social interactions in a variety of settings● Develop, implement, and model effective problem-solving and critical thinking skills● Identify the consequences associated with one's actions in order to make constructive choices● Evaluate personal, ethical, safety, and civic impact of decisions● Establish and maintain healthy relationships	
--	---	--

	<ul style="list-style-type: none"> Utilize positive communication and social skills to interact effectively with others Identify ways to resist inappropriate social pressure Demonstrate the ability to prevent and resolve interpersonal conflicts in constructive ways Identify who, when, where, or how to seek help for oneself or others when needed 		
<p align="center">Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i></p>		<p align="center">Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i></p>	
<p><u>Formative Assessments:</u></p> <ul style="list-style-type: none"> Diagnostic tests used to modify teaching and learning activities to improve student attainment (Unit Pretest, Lesson Check, Lesson Roundup, Unit Review, Lesson quiz) 		<p><u>Benchmarks:</u></p> <ul style="list-style-type: none"> District Assessments <p><u>Summative Assessments:</u></p> <ul style="list-style-type: none"> End of unit / chapter test 	
<p align="center">Differentiated Student Access to Content: Teaching and Learning Resources/Materials</p>			
<p align="center">Core Resources</p>	<p align="center">Alternate Core Resources <i>IEP/504/At-Risk/ESL</i></p>	<p align="center">ELL Core Resources</p>	<p align="center">Gifted & Talented Core Resources</p>
<ul style="list-style-type: none"> Lesson 1: p. 368 Lesson 2: pp. 392, 398, 405, 406 Lesson 3: pp. 415, 428 Leveled Readers - On-Level Reader 	<ul style="list-style-type: none"> Lesson 1: pp. 370, 376 Lesson 2: pp. 390, 400, 405, 407 Lesson 3: pp. 416, 422, 426, 431 Leveled Readers - Extra Support 	<ul style="list-style-type: none"> Lesson 1: p. 379 Lesson 2: pp. 397, 398, 403 Lesson 3: pp. 421, 424 Leveled Readers - Extra Support 	<ul style="list-style-type: none"> Lesson 1: p. 368 Lesson 2: pp. 392, 398, 405, 406 Lesson 3: pp. 415, 428 Leveled Readers - Enrichment

Supplemental Resources

Technology:

- Schoology
- HMH EBook
- Google Classroom
- Kahoot!
- MobyMax
- Quizlet / Quizlet Live
- Quizizz
- Mystery Science
- Newsela
- ReadWorks
- Crash Course Kids
- Legends of Learning
- You Solve It Simulations (Earth's Systems)

Other:

-

**Differentiated Student Access to Content:
Recommended *Strategies & Techniques***

Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
<ul style="list-style-type: none"> ● Model how to identify vocabulary terms within text. Discuss how to locate definition within the text, noting that some definitions will need to be inferred based on images as well as text. 	<ul style="list-style-type: none"> ● Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake tests for additional 	<ul style="list-style-type: none"> ● Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric. 	<ul style="list-style-type: none"> ● Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect students to related talent development opportunities.

	<p>credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.</p>		
--	---	--	--

<p>NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS</p>	<p>Disciplinary Concept: Creativity and Innovation</p>		
	<p>Core Ideas:</p>	<p>Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.</p> <p>Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.</p>	
	<p>Performance Expectation/s:</p>	<ul style="list-style-type: none"> ● 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6,3.MD.B.3,7.1.NM.IPERS.6). ● 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7). ● 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity (e.g., 8.2.5.ED.2, 1.5.5.CR1a). ● 9.4.5.CI.4: Research the development process of a product and identify the role of failure as a part of the creative process (e.g., W.4.7, 8.2.5.ED.6). 	
	<p>Career Readiness, Life Literacies, & Key Skills Practices</p>		

	Students work in cooperative groups and will use research strategies to complete labs
--	---

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
X	Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>		LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	X	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	X	Standards in Action: <i>Climate Change</i>