

Content Area: Science (NJSL-S) Grades K - 12
Grade: 4

Dev. Date:
Established 2016-2017
Revised 2018-2019
Revised 2019-2020
Revised 2020-2021
Revised 2021-2022
Revised 2022-2023

Grade 4

Unit 7 Rocks and Fossils

New Jersey Learning Standards

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

Marking Period	Unit Title	Recommended Instructional Days
4	Rocks and Fossils	15
NJSLS - Science: <i>Title</i>	NJSLS - Science: <i>Performance Expectations</i>	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit
Earth's Place in the Universe	4-ESS1-1- Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. [Clarification Statement: Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock.] [Assessment Boundary: Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers.	

	Assessment is limited to relative time.]	
FOUNDATION Disciplinary: Core Idea	FOUNDATION Disciplinary: Statement	
<ul style="list-style-type: none"> ESS1.C: The History of Planet Earth 	<ul style="list-style-type: none"> Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1) 	<p>Essential Question/s:</p> <ul style="list-style-type: none"> How do rock layers change? What do fossils tell us about ancient environments? What are some patterns fossils show us? <p>Activity Description:</p> <ul style="list-style-type: none"> You Solve It- Layers of Change (Online Simulation) [21st Century, TECH, SS, ELA] Hands-On Activity- Modeling How Rocks Can Form and Change (Pages 468-470) [SCI, SEL, 21st Century, ART, ELA] Hands-On Activity- Old and New (Pages 486-487) [SCI, SEL, 21st Century, SS, PE, ELA] Hands-On Activity- Layer by Layer (Pages 502-504) [SCI, SEL, 21st Century, ART, ELA, PE] Unit Project- DinoZoo [SCI, SEL, 21st Century, SS, ELA] Scientist Spotlight- Geerat Vermeij and Louis R.Purnell [SCI, 21st Century]
FOUNDATION Science and Engineering Practices: Core Idea	FOUNDATION Science and Engineering Practices: Statement	
<ul style="list-style-type: none"> Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. 	<ul style="list-style-type: none"> Identify the evidence that supports particular points in an explanation. (4-ESS1-1) 	

<p>FOUNDATION Crosscutting Concepts: <i>Core Idea</i></p>	<p>FOUNDATION Crosscutting Concepts: <i>Statement</i></p>	<p>Interdisciplinary Connections: Content: NJSLS:</p>
<ul style="list-style-type: none"> ● Patterns ● Scientific Knowledge Assumes an Order and Consistency in Natural Systems 	<ul style="list-style-type: none"> ● Patterns can be used as evidence to support an explanation. (4-ESS1-1) ● Science assumes consistent patterns in natural systems. (4-ESS1-1) 	<p><i>Connections to NJSLS – English Language Arts</i></p> <ul style="list-style-type: none"> ● W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. (4-ESS1-1) ● W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information and provide a list of sources. (4-ESS1-1) ● W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (4-ESS1-1)
<p>Social and Emotional Learning: <i>Competencies</i></p>	<p>Social and Emotional Learning: <i>Sub-Competencies</i></p>	<p><i>Connections to NJSLS – Mathematics</i></p> <ul style="list-style-type: none"> ● MP.2 Reason abstractly and quantitatively. (4-ESS1-1) ● MP.4 Model with mathematics. (4-ESS1-1)
<ul style="list-style-type: none"> ● Responsible Decision-Making ● Relationship Skills 	<ul style="list-style-type: none"> ● 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. ● Utilize positive communication and social skills to interact effectively with others. 	<ul style="list-style-type: none"> ● 4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. (4-ESS1-1)

Assessments (Formative) <i>To show evidence of meeting the standard/s, students will successfully engage within:</i>		Assessments (Summative) <i>To show evidence of meeting the standard/s, students will successfully complete:</i>	
<u>Formative Assessments:</u> <ul style="list-style-type: none"> Unit Pretest, Lesson Check, Lesson Roundup, Lesson Quiz, and student responses in Ebook. 		<u>Benchmarks:</u> <ul style="list-style-type: none"> District Assessment <u>Summative Assessments:</u> <ul style="list-style-type: none"> Unit 7 Performance Task- Rocking the Layers (Pages 518-519) Unit 7 Test Written Reports based on hands-on activities and Lego WeDo 2.0 	
Differentiated Student Access to Content: Teaching and Learning Resources/Materials			
Core Resources	Alternate Core Resources IEP/504/At-Risk/ESL	ELL Core Resources	Gifted & Talented Core Resources
<ul style="list-style-type: none"> HMH Workbook HMH Science Dimension Kits Lego WeDo 2.0 Student Chromebooks Video Based Projects for each Unit 	<ul style="list-style-type: none"> Text to Speech Tool on HMH E-Book Read-Along Highlight Tool on HMH E-Book Leveled Readers Vocabulary Card Game for each unit 	<ul style="list-style-type: none"> Multilingual Glossary on HMH Ed website 	<ul style="list-style-type: none"> Leveled Readers Lego WeDo 2.0 Extension Activities You Solve It Simulations 21st Century Skills-Technology and Coding
Supplemental Resources			

<p>Technology:</p> <ul style="list-style-type: none"> • HMH E-Book • Schoology • Kahoot! • Quizlet/Quizlet Live • Quizizz • Newsela • Readworks • NSTA Lesson Resource-Earth’s Place in the Universe • Study Jams (Click to Landforms, Rocks, and Minerals) • You Solve it Simulations <p>Other:</p> <ul style="list-style-type: none"> • Leveled Readers • Lego WeDo 2.0 			
<p>Differentiated Student Access to Content: Recommended <i>Strategies & Techniques</i></p>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
<ul style="list-style-type: none"> • Promote an approach that benefits multiple learning styles exploring phenomena through readings, videos, and collaborative projects. • Establishing proper safety protocols for using specialized equipment and gathering materials. 	<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 	<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, 	<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

<ul style="list-style-type: none"> Establishing communication protocols for collaborative activities to ensure all students properly communicate and involve every student. Demonstrate that the Engineering Design Process is a flexible cycle that allows for steps to be repeated. 	<p>test content and/or format, allow students to retake test for additional 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>and modified assessment and/or rubric.</p>	<p>talent development opportunities.</p>
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<p>NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS</p>	<p>Disciplinary Concept:</p>	
	<p><i>Core Ideas:</i></p>	<ul style="list-style-type: none"> Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions. Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills. The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.
	<p><i>Performance Expectation/s:</i></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).

		<ul style="list-style-type: none"> 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). 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2). 9.4.5.CT.2: Identify a problem and list the types of individuals and resources (e.g., school, community agencies, governmental, online) that can aid in solving the problem (e.g., 2.1.5.CHSS.1, 4-ESS3-1). 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems. 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.Civics CM.3).
	Career Readiness, Life Literacies, & Key Skills Practices	
	<ul style="list-style-type: none"> Hands-on activities provide opportunities for creativity and innovation. Working in small groups will allow students to collaborate with classmates who possess diverse perspectives for innovative solutions. Also, collaboration will enhance their ability to gather data, discover resources, and apply critical thinking skills to solve real-world problems. 	

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>		Standards in Action: <i>Climate Change</i>

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