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

Grade 4

Unit 6 Changes to Earth's Surface

New Jersey Learning Standards

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

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

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Established 2016-2017
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Marking Period	**Unit Title**	**Recommended Instructional Days**
3	Changes to Earth's Surface	23

NJSLS - Science: ***TItle***	**NJSLS - Science:** ***Performance Expectations***	**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit**
Earth's Systems	• **4-ESS2-1**-Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. [Clarification Statement: Examples of variables to test could include angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling, and volume of water flow.] [Assessment Boundary: Assessment is limited to a single form of weathering or erosion.] • **4-ESS2-1**-Analyze and interpret data from maps to describe patterns of Earth's features. [Clarification	

	Statement: Maps can include topographic maps of Earth's land and ocean floor, as well as maps of the locations of mountains, continental boundaries, volcanoes, and earthquakes.]	
FOUNDATION Disciplinary: ***Core Idea***	**FOUNDATION Disciplinary:** ***Statement***	
• **ESS2.A: Earth Materials and Systems** • **ESS2.B: Plate Tectonics and Large Scale System Interactions** • **ESS2.E: Biogeology**	• Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. (4-ESS2- 1) • The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their	**Essential Question/s:** • How does water shape Earth's surface? • How do other factors shape Earth's surface? • How can maps help us learn about Earth's surface? • What patterns do maps show us? **Activity Description:** • You Solve It- Evidence of Change (Online Simulation) [21st Century, TECH, ELA, SS] • Apply What You Know- Watching Water Grow (Page 363) [ELA, SS] • Hands-On Activity- The Rate of Change (Page 366-368) [SCI, SEL, 21st Century, ELA, MA] • Hands-On Activity- Finding Change (Pages 392-394) [SCI, SEL, 21st Century, ELA, ART, MA] • Hands-On Activity- Park Designer (Pages 419-421) [SCI, SEL, 21st Century, ELA, SS, MA, ART • Hands-On Activity- Tracking Quakes (Pages 440-442) [SCI, SEL, 21st Century, ELA, SS, MA]

	edges. Maps can help locate the different land and water features areas of Earth. (4-ESS2-2) ● Living things affect the physical characteristics of their regions. (4- ESS2-1)	● Mystery Science- Birth of Rocks (4 Mysteries) [SCI, SEL, 21st Century, ELA, PE, SS, MA, TECH] ● Unit Project- Nearby Weathering [SCI, SEL, 21st Century, ELA, ART, MA, TECH] ● Scientist Spotlight-Rufus Catchings [SCI, 21st Century] **Interdisciplinary Connections: Content: NJSLS:** *Connections to NJSLS – English Language Arts* • **RI.4.7** Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. (4-ESS2-2) • **W.4.7** Conduct short research projects that build knowledge through investigation of different aspects of a topic. (4-ESS2-1) • **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-ESS2-1) *Connections to NJSLS – Mathematics* • **MP.2** Reason abstractly and quantitatively. (4-ESS2-1) • **MP.4** Model with mathematics. (4-ESS2-1) • **MP.5** Use appropriate tools strategically. (4-ESS2-1) • **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-ESS2-1) • **4.MD.A.2** Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller
FOUNDATION **Science and Engineering Practices:** ***Core Idea***	**FOUNDATION** **Science and Engineering Practices:** ***Statement***	
● **Planning and Carrying Out** Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. ● **Analyzing and Interpreting Data** Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible	● Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (4-ESS2-1) ● Analyze and interpret data to make sense of phenomena using logical reasoning. (4-ESS2-2)	

and feasible, digital tools should be used.		unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. (4-ESS2-1), (4-ESS2-2)
FOUNDATION Crosscutting Concepts: ***Core Idea***	**FOUNDATION Crosscutting Concepts:** ***Statement***	
● **Patterns** ● **Cause and Effect**	● Patterns can be used as evidence to support an explanation. (4-ESS2- 2) ● Cause and effect relationships are routinely identified, tested, and used to explain change. (4-ESS2- 1)	
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
● Responsible Decision-Making ● Relationship Skills	● 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.	

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: ● Unit Pretest, Lesson Check, Lesson Roundup, Lesson Quiz, and student responses in Ebook.	**Benchmarks:** ● District Assessment **Summative Assessments:** ● Unit 6 Performance Task- Model It, Map It (Pages 448-449) ● Unit 6 Test ● Written Reports based on hands-on activities

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**
● HMH Workbook ● HMH Science Dimension Kits ● Lego WeDo 2.0 ● Student Chromebooks ● Video Based Projects for each Unit	● Text to Speech Tool on HMH E-Book ● Read-Along Highlight Tool on HMH E-Book ● Leveled Readers ● Vocabulary Card Game for each unit	● Multilingual Glossary on HMH Ed website	● Leveled Readers ● Lego WeDo 2.0 Extension Activities ● You Solve It Simulations ● 21st Century Skills-Technology and Coding

Supplemental Resources

Technology:

- HMH E-Book
- Schoology
- Kahoot!
- Quizlet/Quizlet Live
- Quizizz
- Newsela
- Readworks
- NSTA Lesson Resource-Earth's Systems
- Study Jams (Click to Landforms, Rocks, & Minerals)
- You Solve it Simulations

Other:

- Leveled Readers
- Lego WeDo 2.0

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

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
• 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.	• 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	• 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,	• 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

• 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.	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.	and modified assessment and/or rubric.	talent development opportunities.

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept:**	
	Core Ideas:	• 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.
	Performance Expectation/s:	• 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). • 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	
	• 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: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		X Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*

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