Grade 6
Trimester 3

Unit 4 Earth through Time
Unit 5 Earth's Natural Hazards
Unit 1 Cells and Organization in Organisms

New Jersey Student Learning Standards

Established	2016-2017
Revised	2017-2018
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Revised	2024-2025

Marking Period	Unit Title	Recommended Instructional Days
Trimester 3	Unit 4 Earth through Time Unit 5 Earth's Natural Hazards Unit 1 Cells and Organization in Organisms	**60 Days**

NJSLS - Science: *Title*	NJSLS - Science: *Performance Expectations*	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit
Geologic Processing and History **Earth and Human Activity** **Engineering Design**	**MS-ESS1-4** Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth' s 4.6-billion-year-old history. **MS-ESS3-2.** Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. MS-ETS1-1 Define the criteria and	**Essential Question/s:** **Unit 4 Earth Through Time** 1. What is the geological timescale? 2. What are fossils and how are they created? 3. How can rock strata be used to determine the relative age of a fossil? 4. How can rocks and fossil records be analyzed to divide earth's history into the geologic time scale? 5. How do patterns in the fossil record indicate how living things have changed throughout history? **Unit 5 Earth's Natural Hazards** 1. How can humans predict and prepare for the event of natural hazards? 2. How can humans lessen the effects of natural hazards? **Unit 1 Cells and Organization in Organisms**

Structure, Function, and Information Processing	constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-LS1-1.** Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. **MS-LS1-2.** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. **MS-LS1-3.** Use arguments supported by evidence for how the body is a system of interacting	1. What are the building blocks of life? 2. How do the parts of a cell contribute to the function of the cell? 3. How is the body a system of interacting subsystems composed of groups of cells? 4. How do our sensory receptors send information to our brain? **Activity Description:** ❖ Lesson Phenomenon ❖ Unit Opener: Can you Explain it? ❖ "Take it Further" activities **Unit 4 Earth Through Time** ❖ Hands on Lab: Model a Rock Formation ❖ Hands on Lab: Construct a Timeline ❖ Virtual Lab: How Do We Divide Earth's History? ❖ Virtual Lab: Ordering Earth's Rock Layers **Unit 5 Earth's Natural Hazards** ❖ Hands on Lab: Determine Landslide Risk ❖ Hands on Lab: Develop and Evaluate a Flood Solution ❖ Virtual Lab: How Can We Study Earthquakes? **Unit 1 Cells and Organization in Organisms**

	subsystems composed of groups of cells. **MS-LS1-8.** Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.	❖ Hands on Lab: Observe Cells with a Microscope ❖ Hands on Lab: Modeling the Cell Membrane ❖ Hands on Lab: Take a Deep Breath ❖ Hands on Lab: Measure System Response to Exercise ❖ Hands on Lab: Measure Reaction Time ❖ Hands on Lab: Model Tissue Structure and Function ❖ Hands on Lab: Observe Transport ❖ Virtual Lab: Analyzing Cells **Lab and engineering activities will incorporate these skills:** ● Planning and Organization ● Critical Thinking ● Communication in a group ● Decision Making ● Reflection on activity and participation **Spotlight on scientists and their accomplishments** Example: Sara Josephine Baker - Physician Michael Dillon - Ethics and Medicine Lynn Margulis, Biologist Dr. Gary Banuelos, Soil Scientist **Human Impacts on Earth**
FOUNDATION **Disciplinary:** ***Core Idea***	**FOUNDATION** **Disciplinary:** ***Statement***	
ESS1.C The History of Planet Earth **ESS2.A Earth's Materials and Systems**	Tectonic processes continually generate new ocean seafloor at ridges and destroy old seafloor at trenches. (HS.ESS1.C GBE) (secondary to MS-ESS2-3) All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in	

ESS3.B Natural Hazards **ETS1.A Defining and Delimiting Engineering Problems**	Earth's materials and living organisms. (MS-ESS2-1) The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. (MS-ESS2-2) Mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events. (MS-ESS3-2) The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.	*Human activity can affect the Earth's systems. *An increase in the Greenhouse Gases contributes to climate change *Climate change can impact unicellular and multicellular organisms. Refer to NASA Climate Kids website (plants and animals) **Interdisciplinary Connection: Content: (NJSLS#)** **Connections to Mathematics:** ● Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. **(6.EE.B.6)** ● Use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems by reasoning about the quantities. **(7.EE.B.4)** ● Reason abstractly and quantitatively. **(MP.2)** ● Use variables to represent two quantities in a real-world problem that changes in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, though as the independent variable. Analyze the relationship between the dependent and independent variables

LS1.A Structure and Function	(MSo-ESTS1-1) All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1) Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2) In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions. (MS-LS1-3) Each sense receptor responds to	using graphs and tables, and relate these to the equation. **(6.EE.C.9)** **<u>Connections to Language Arts:</u>** ● Cite specific textual evidence to support analysis of science and technical texts. **(RST.6-8.1)** ● Write arguments focused on content. **(WHST.6-8.1)** ● Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. **(WHST.6-8.2)** ● Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). **(RST.6-8.7)** ● Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. **(WHST.6-8.7)** ● Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. **(WHST.6-8.8)**

LS1.D Information Processing **ETS1.B Developing Possible Solutions**	different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories. (MS-LS1-8) A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. (MS-ETS1-4) There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (MS-ETS1-2), (MS-ETS1-3) Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. (MS-ETS1-3) Models of all kinds are	

	important for testing solutions. (MS-ETS1-4)	
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 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or design solutions.	
Developing and Using Models	Modeling in 6–8 builds on K–5 and progresses to developing, using and revising models to describe, test, and predict more abstract phenomena design systems.	
Analyzing and Interpreting Data	Analyzing data in 6–8 builds on K–5 and progresses to extending quantitative analysis to investigations, distinguishing	

	between correlation and causation, and basic statistical techniques of data and error analysis.	
Constructing Explanations and Designing Solutions	Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.	
Engaging in Argument from Evidence	Engaging in argument from evidence in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed worlds.	
Obtaining, Evaluating, and Communicating Information	Obtaining, evaluating, and	

Asking Questions and Defining Problems	communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods. Asking questions and defining problems in grades 6–8 builds on grades K–5 experiences and progresses to specifying relationships between variables and clarifying arguments and models.	
FOUNDATION **Crosscutting Concepts:** ***Core Idea***	**FOUNDATION** **Crosscutting Concepts:** ***Statement***	
Cause and Effect	Relationships can be classified as causal or correlational, and correlation does not necessarily imply causation. (MS-ESS3-3) Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-ESS3-1), (MS-ESS3-4)	

Scale, Proportion, and Quantity	Phenomena that can be observed at one scale may not be observable at another scale. (MS-LS1-1)	
Stability and Change	Stability might be disturbed either by sudden events or gradual changes that accumulate over time. (MS-ESS3-5)	
Patterns	Graphs, charts, and images can be used to identify patterns in data. (MS-ESS3-2)	
Systems and System Models	Systems may interact with other systems; they may have sub-systems and be a part of large complex systems. (MS-LS1-3)	
Structure and Function	Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the shapes, composition, and relationships	

	among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. (MS-LS1-2)	
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
Responsible Decision-Making Relationship Skills Self-Management Social Awareness Social Awareness	● Develop, implement, and model effective problem-solving and critical thinking skills ● Utilize positive communication and social skills to interact effectively with others ● Recognize the skills needed to establish and and achieve personal and educational goals ● Demonstrate an understanding of the need for mutual respect when viewpoints differ. ● Demonstrate an awareness of the expectations for	

Social Awareness	social interactions in a variety of ways. ● Recognize the importance of self-confidence in handling daily tasks and challenges	

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: ● Diagnostic tests used to modify teaching and learning activities to improve student attainment	**Benchmarks:** ● District Assessment **Summative Assessments:** ● End of unit/chapter tests/lesson quizzes

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**
● **Interactive Worktext** ● **Equipment Kits** ● **Online Simulations** ● **Evidence Notebook** ● **Lab Safety Handbook**	● Multilingual Glossary ● Online Science Tools (Scientific Calculator, Graphing)	● Multilingual Glossary ● Online Science Tools (Scientific Calculator, Graphing)	● Online Simulations ● Virtual Labs ● Webquests ● Video-Based Projects ● Take It Further

			• You Solve It! • Unit Performance Tasks • Unit Projects • Online Science Tools (Scientific Calculator, Graphing)

Supplemental Resources

Technology: 8.1.8.A.1, 8.1.8.A. 2, 8.1.8.A.3, 8.1.8.A. 4, 8.1.8.A. 5

Other: Career Education

- CRP4 Communicate clearly and effectively and with reason.
- CRP6 Demonstrate creativity and innovation
- CRP7 Employ valid and reliable research strategies
- CRP11 Use technology to enhance productivity

Differentiated Student Access to Content:
Recommended Strategies & Techniques

Core Resources	**Alternate Core Resources** *IEP/504/At-Risk/ESL*	**ELL Core Resources**	**Gifted & Talented Core Resources**
• **Large group instruction** • **Small group instruction** • **Think Pair Share**	• Utilize a multi-sensory (VAKT) approach during instruction, provide	• Extend time requirements, preferred seating,	• Create an enhanced set of introductory activities, integrate

• **Peer editing** • **Cooperative group work** • **Multimedia presentations** • **Choice Boards/Learning Menus** • **Manipulatives**	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 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.	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.	active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related talent development opportunities.

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept: 1.Career Awareness and Planning, 2.Creativity and Innovation, 3.Critical Thinking and Problem Solving, 4.Global and Cultural Awareness 5. Digital Citizenship 6. Information and Media Literacy 7. Technology Literacy**	
	Core Ideas:	**1. There are a variety of resources available to help navigate the career planning process.** **2. Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.**

		3. **Multiple solutions often exist to solve a problem.** 4. **Awareness of and appreciation for cultural differences is critical to avoid barriers to productive and positive interaction.** 5. **Detailed examples exist to illustrate crediting others when incorporating their digital artifacts in one's own work.** 6. **Digital tools make it possible to analyze and interpret data, including text, images, and sound. These tools allow for broad concepts and data to be more effectively communicated.** 7. **Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others**
	Performance Expectation/s:	1. **9.2.8.CAP.12: Assess personal strengths, talents, values, and interests to appropriate jobs and careers to maximize career potential.** 2. **9.4.8.CI.1: Assess data gathered on varying perspectives on causes of climate change (e.g., cross cultural, gender-specific, generational), and determine how the data can best be used to design multiple potential solutions (e.g., RI.7.9, 6.SP.B.5, 7.1.NH.IPERS.6, 8.2.8.ETW.4).** 3. **9.4.8.CT.1: Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective (e.g., MS-ETS1-2).** 4. **9.4.8.GCA.2: Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.** 5. **9.4.8.DC.1: Analyze the resource citations in online materials for proper use.** 5. **9.4.8.DC.2: Provide appropriate citation and attribution elements when creating media products (e.g., W.6.8).** 6. **9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.** 7. **9.4.8.TL.2: Gather data and digitally represent information to**

		communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4). **7. 9.4.8.TL.2: Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).**
	Career Readiness, Life Literacies, & Key Skills Practices	
	• **Act as a responsible and contributing community member and employee.** • **Demonstrate creativity and innovation.** • **Utilize critical thinking to make sense of problems and persevere in solving them.** • **Consider the environmental, social and economic impacts of decisions.** • **Use technology to enhance productivity, increase collaboration and communicate effectively.** • **Work productively in teams while using cultural/global competence.**	

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*	X	LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*	X	Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*	X	Standards in Action: *Climate Change*